SERVICE MANUAL
SILVER

MODEL ST858
MODEL SL8
REVISION 1

THIS SERVICE MANUAL IS TO BE APPLIED TO MODEL ST858 WITH METAL TAPE SELECTOR. AS TO MODEL SL8, PLEASE REFER TO THE ORIGINAL SERVICE MANUAL FOR MODEL ST858 (PART NO. 1112-G000188).

SPECIFICATIONS

POWER SUPPLY
Mains: AC 110–127V/220–240V(switchable), 50/60 Hz
Batteries: DC 13.5V,"D" size flashlight(UM-1(A))
External Power: DC12–14V
POWER CONSUMPTION 40W maximum
MAXIMUM POWER OUTPUT 14,000 mW total
SPEAKER
Woofer: 160 mm, 4 ohms, dynamic 2 pcs.
Tweeter: 50 mm, 8 ohms, dynamic 2 pcs.
DIMENSIONS 522(W) x 147(D) x 331(H) mm
WEIGHT 8.6 kg (with batteries)
RADIO SECTION
Tuning Range: FM......87.5–108 MHz
MW.....525–1605 kHz
SW1.... 1.6–4.5 MHz (187.5–66.7 m)
SW2.... 4.5–12 MHz (66.7–25 m)
SW3.... 12–26.5 MHz (25–11.3 m)
Intermediate Frequency: FM......10.7 MHz
AM..... 455 kHz
Antenna System: FM......300 ohm balanced external antenna or telescopic antenna
MW/SW1...... High gain ferrite bar antenna
SW2/SW3..... Telescopic antenna
FM Stereo Separation: 35 dB (at 1 kHz)

TAPE RECORDER SECTION
Type: 4 track, 2 channel stereo or monaural
Tape Speed: 4.75 cm/sec.
Frequency Response: Normal.............. 60–15,000 Hz
CrO2 .... 60–16,000 Hz
Metal................. 60–16,000 Hz
Wow and Flutter: 0.1% (RMS weighted)
Rewind Time: 95 seconds approx. with C60 compact cassette tape
Recording and Erase System: AC bias and AC erase
JACKS
External Mic. (right, left):
Microphone impedance less than 1.8 k ohms
Auxiliary Input:
Input sensitivity 90 mV at 680 k ohms
Tape Output: Output level 200 mV at 7 k ohms (load)
External Speaker (right, left):
External speaker (impedance 4–8 ohms) or earphone
Stereo Headphone: Impedance 8 ohms
Remote: To start and stop tape travel during recording and playback

Specifications may be changed without notice.

NOTE: When spare parts are needed, type the quantity desired in the "ORDER Q'TY" column of the order form in this Service Manual and send copy.

METHOD OF DISASSEMBLING

1. Open the battery compartment cover and remove 1 self-tapping screw (A).
   Remove 7 self-tapping screws (B) on the cabinet back.
2. Lift up the cabinet back slightly, disconnect the connector (J101) with leads of telescopic antennas (A1, 2) from tuner/IF amp./MPX P.C. board and disconnect the connector (J112) with leads from power supply P.C. board.

CASSETTE COMPARTMENT ASSEMBLY REMOVAL

3. Disconnect 6 connectors (J104, J105, J106, J107, J108 & J109) with leads from rec./play amp. P.C. board.
4. Remove 4 screws (C) mounting rec./play amp. P.C. board and shield plate and remove them.
5. Remove 5 self-tapping screws (D) mounting the cassette tape recorder assembly and remove it.
6. Remove 2 self-tapping screws (E) mounting the AQPS indicator drive P.C. board and remove it.
7. Remove 5 self-tapping screws (F) mounting the cassette compartment assembly.
8. Remove the cassette compartment assembly from cabinet front.

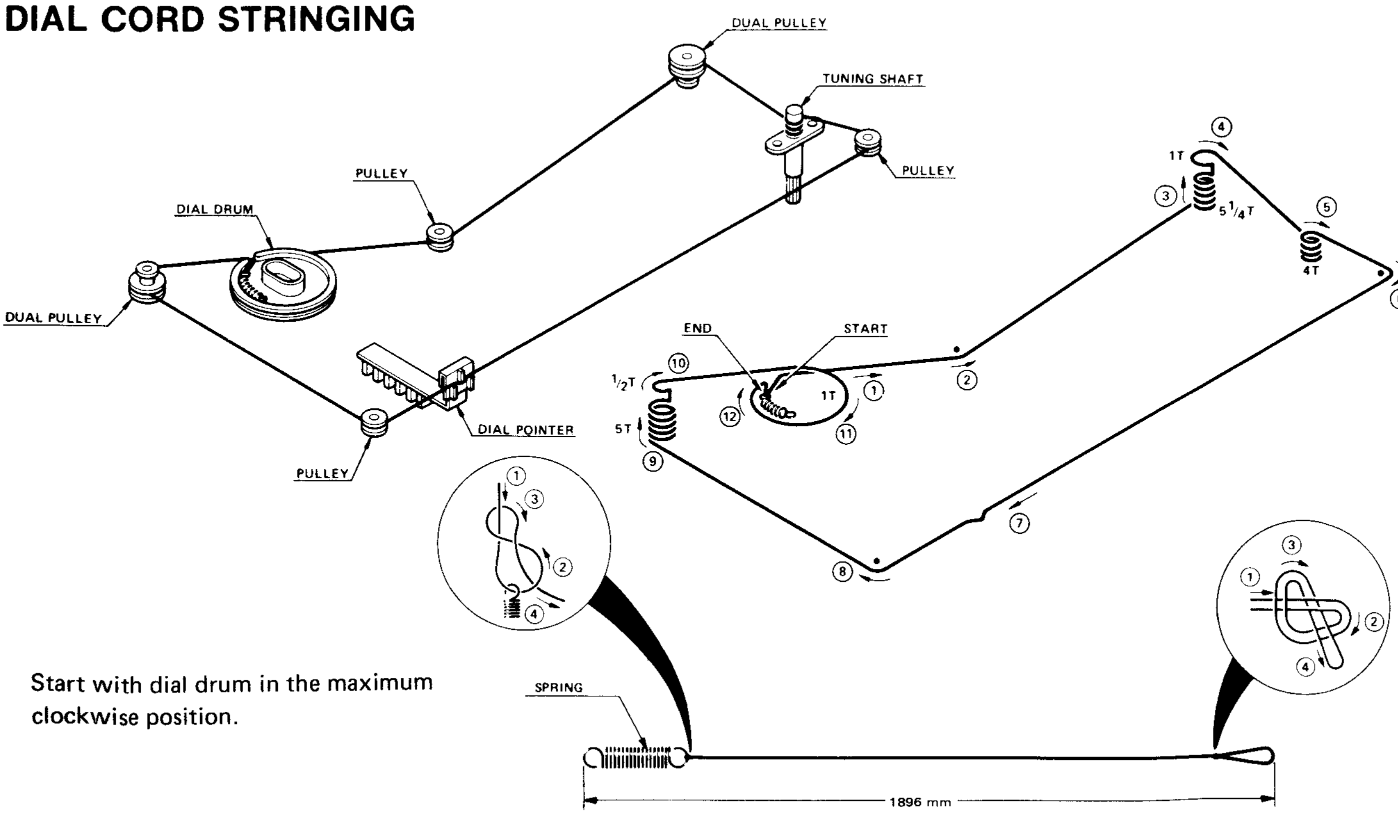
DIAL PANEL ASSEMBLY REMOVAL

9. Pull out 6 knobs (Bass, Treble, Balance, Volume, Left Rec. Level and Right Rec. Level).
10. Disconnect 2 connectors (J102 & J103) with leads from tuner/IF amp./MPX P.C. board.
11. Remove 4 self-tapping screws (G) and 1 screw (H) mounting tuner/IF amp./MPX P.C. board and take out it.
12. Disconnect 1 connector (J110) with leads from pre/tone control amp. P.C. board.
13. Remove 2 self-tapping screws (I) and 1 self-tapping screw (J) mounting power amp. P.C. board and remove it.
14. Remove 4 self-tapping screws (K) mounting bracket with tone control amp. P.C. board, control switch P.C. board, Aux. IN/C. Mic. switch P.C. board and pre/tone control amp. P.C. boards and remove it.
15. Remove 1 self-tapping screw (L) mounting power indicator P.C. board and remove it.
16. Remove 2 self-tapping screws (M) mounting power switch bracket with power knob and power indicator drive P.C. board and remove it.
17. Remove 2 self-tapping screws (N) mounting tuning display P.C. board and remove it.
18. Remove 6 self-tapping screws (O) mounting dial panel assembly with dial back plate.
19. Remove dial panel assembly with dial back plate from cabinet front.

REC./VU INDICATOR PANEL ASSEMBLY REMOVAL

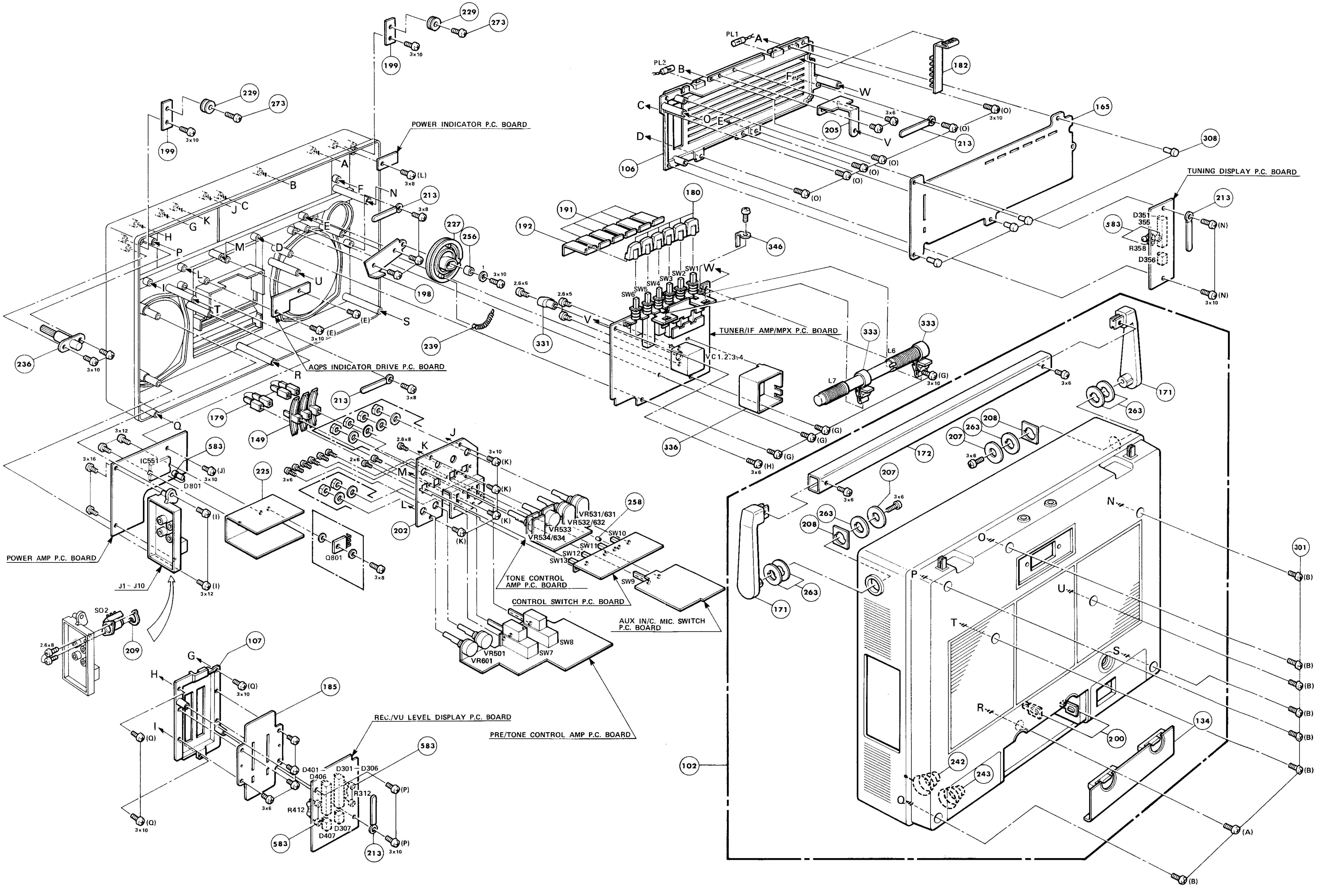
20. Remove 2 self-tapping screws (P) mounting rec./VU level display P.C. board and remove it.
21. Remove 3 self-tapping screws (Q) mounting rec./VU indicator panel assembly with rec./VU indicator back plate.
22. Remove rec./VU indicator panel assembly with rec./VU indicator back plate from cabinet front.

DIAL CORD STRINGING



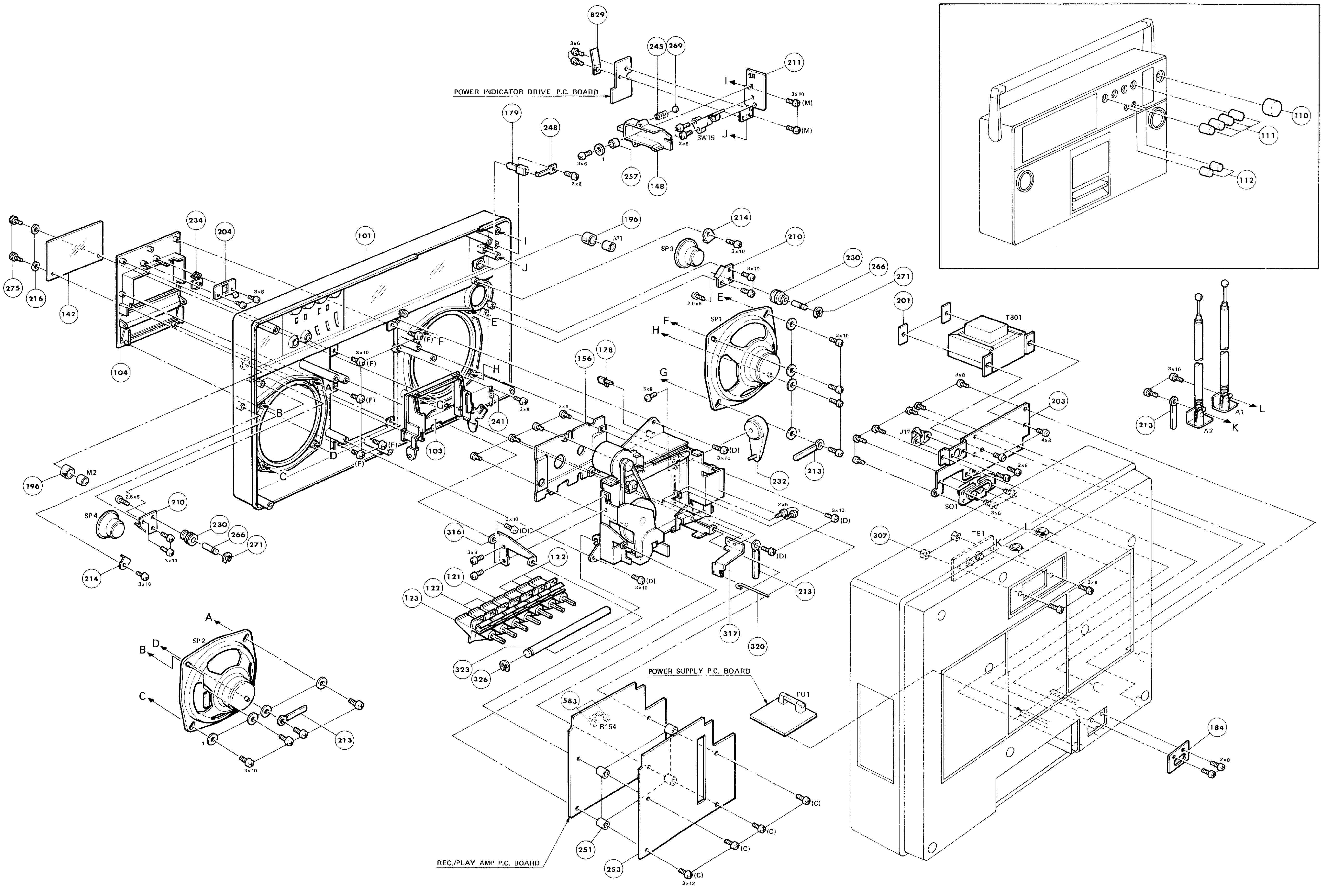
Start with dial drum in the maximum clockwise position.

GENERAL UNIT EXPLODED VIEW


229
273
199
3x10
POWER INDICATOR P.C. BOARD
AQPS INDICATOR DRIVE P.C. BOARD
TUNING DISPLAY P.C. BOARD
TUNER/IF AMP/MPX P.C. BOARD
POWER AMP P.C. BOARD
TONE CONTROL AMP P.C. BOARD
CONTROL SWITCH P.C. BOARD
AUX IN/C. MIC. SWITCH P.C. BOARD
REC/VU LEVEL DISPLAY P.C. BOARD
PRE/TONE CONTROL AMP P.C. BOARD
PL1
PL2
182
165
308
106
205
213
180
191
192
346
227
256
198
239
331
333
336
236
179
149
225
583
202
258
171
263
208
207
172
301
134
200
242
243
102
107
185
209
SO2
J1~J10
IC551
D801
Q801
D351
355
R358
D356
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
SW9
SW10
SW11
SW12
SW13
VR501
VR601
VR531/631
VR532/632
VR533
VR534/634
VC1.2.3.4
L6
L7
D401
D406
D407
D301
D306
D307
R312
R412
3x6
3x8
3x10
3x12
3x16
2.6x5
2.6x6
2.6x8
2x6

NOTE : The notation "3x6" means the screw diameter is 3 mm ; its length is 6 mm.
The notation "0.5" means the washer thickness is 0.5 mm.

GENERAL UNIT EXPLODED VIEW


829
3x6
245
269
211
POWER INDICATOR DRIVE P.C. BOARD
I
3x10
(M)
(M)
2x8
SW15
J
179
248
3x6
1
3x8
257
148
110
111
112
275
216
142
234
204
3x8
101
196
M1
I
J
214
SP3
3x10
210
3x10
230
266
271
2.6x5
E
E
F
H
SP1
3x10
201
T801
(F)
F
3x10
(F)
H
156
178
G
3x6
104
A
B
(F)
G
241
3x8
2x4
103
(F)
D
(F)
C
(D)
3x10
232
213
3x8
203
J11
4x8
2x6
3x10
213
A1
A2
L
K
196
M2
2.6x5
210
SP4
230
266
271
3x10
214
3x10
316
3x10
(D)
3x6
121
122
122
123
2x5
3x10
(D)
(D)
(D)
3x10
213
317
320
SO1
3x6
307
TE1
L
K
3x8
A
D
SP2
B
C
213
3x10
1
323
326
POWER SUPPLY P.C. BOARD
FU1
583
R154
184
2x8
(C)
(C)
(C)
(C)
3x12
251
253
REC./PLAY AMP P.C. BOARD

GENERAL UNIT MECHANICAL PARTS LIST

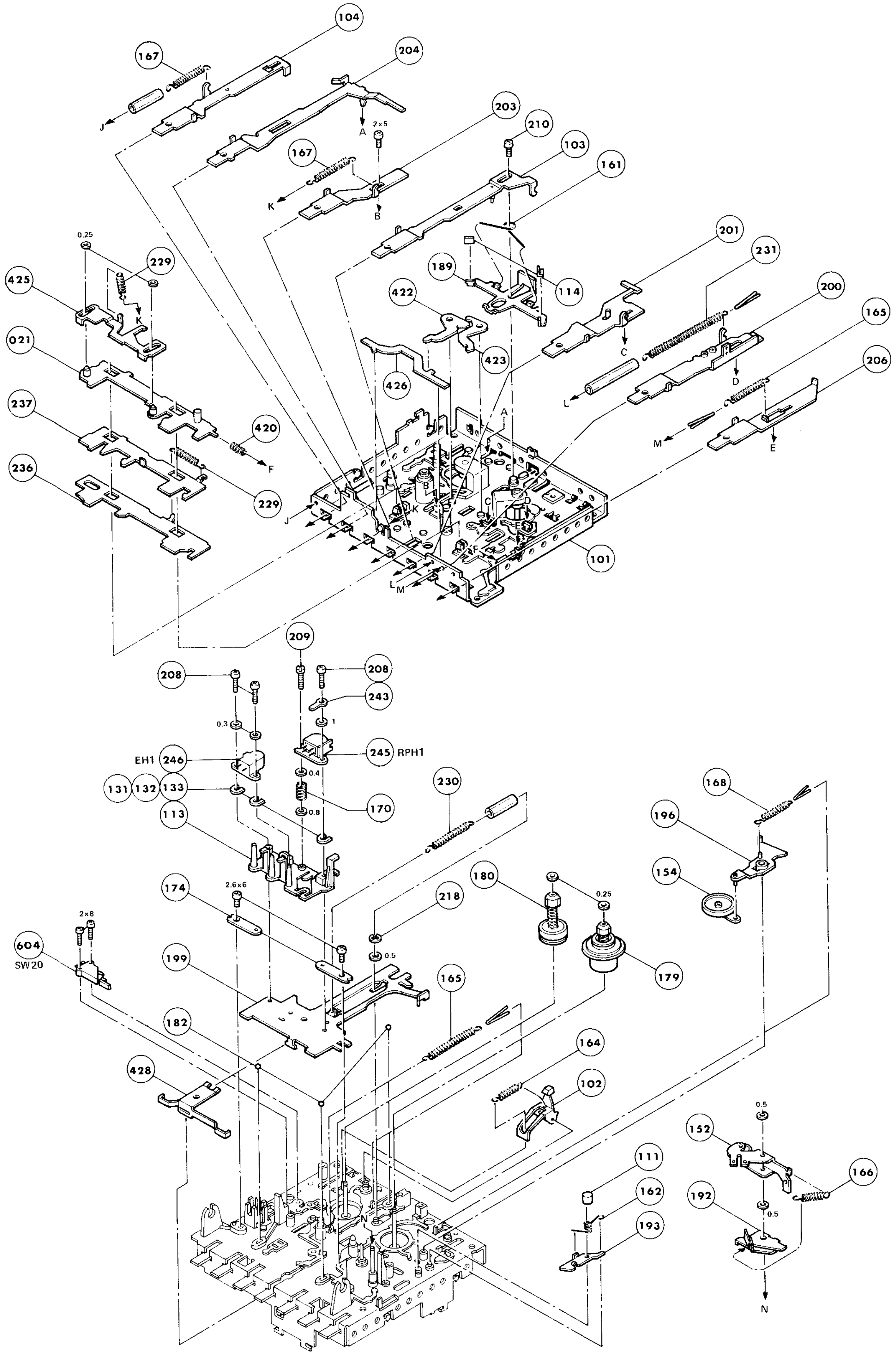
[MODEL ST858]

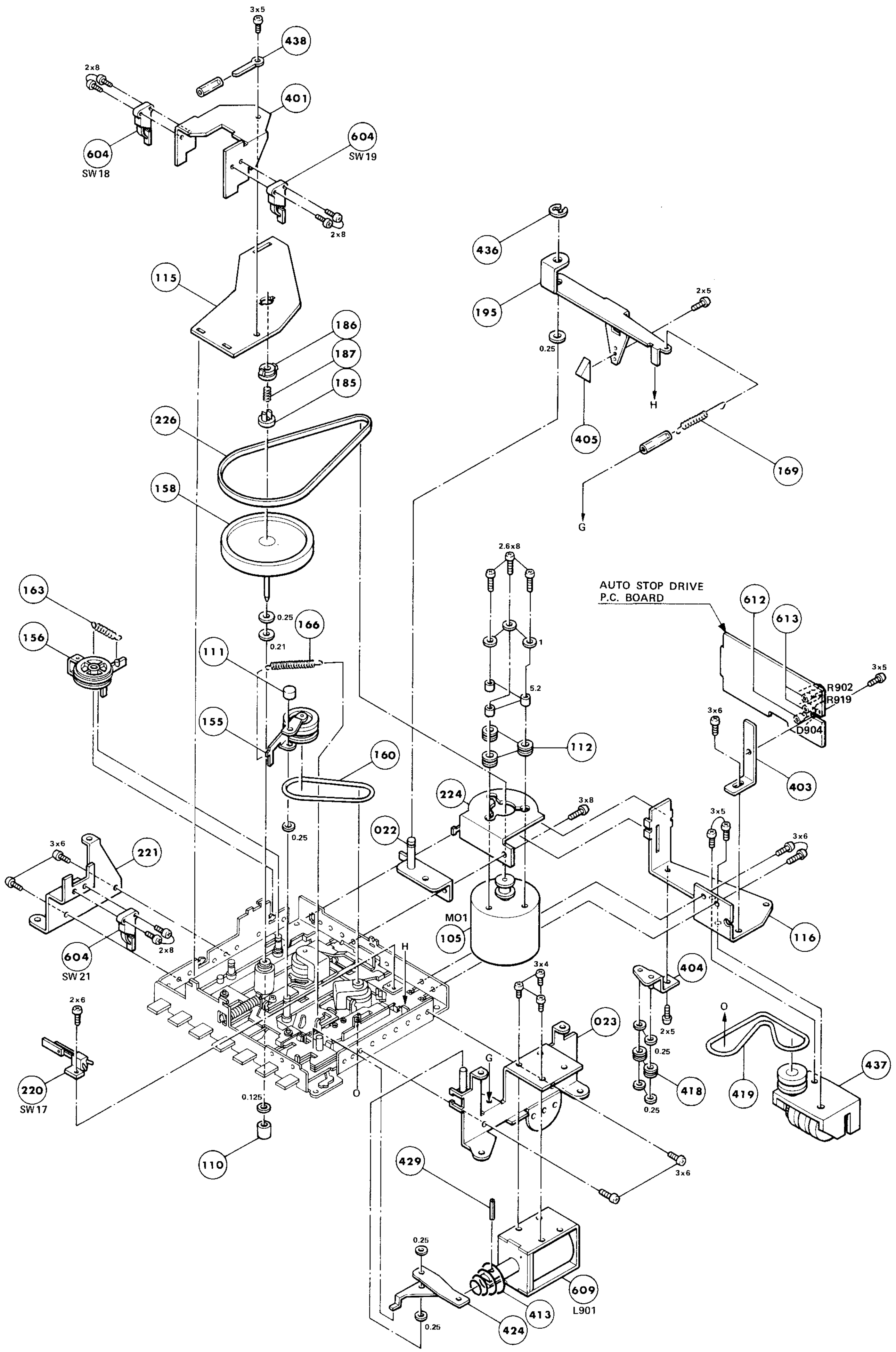
SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
AA	101	Cabinet Front Assembly	A412-ST858MT			
AB	102	Cabinet Back Assembly (Includes : Battery Compartment Cover and Handle)	A422-ST858MT			
ABA	102	Cabinet Back Assembly (Includes : Battery Compartment Cover and Handle) [Italy Version only]	A422-ST858MT-B			
AC	103	Cassette Compartment Slot Assembly	A612-ST858MT			
AD	104	Cassette Compartment Assembly	A562-ST858MT			
AF	106	Dial Panel Assembly	A542-ST858MT			
AG	107	Indicator Panel Assembly, Rec./VU	A722-ST858MT			
AL	110	Knob Assembly, Tuning	A632-ST858MT-A			
AM	111	Knob Assembly, Bass, Treble, Balance, Volume	A632-ST858MT-B			
AN	112	Knob Assembly, Left and Right Rec. Level	A632-ST858MT-C			
AA	121	Pushbutton Assembly, Play	A652-ST858M-A			
AB	122	Pushbutton Assembly, Eject, Rec., Rew., Stop, F.F.	A652-ST858M-B			
AC	123	Pushbutton Assembly, Pause	A652-ST858M-C			
134	134	Battery Compartment Cover	1432-00601			
142	142	Cassette Compartment Cover	1532-00801			
148	148	Knob, Power	1642-00201			
149	149	Knob, Mode, Aux. IN/C. Mic., Radio	1642-00301			
156	156	Dressing Plate, Cassette	1514-00501			
165	165	Dial Back Plate	1553-00101			
171	171	Metal Fitting, Handle	1624-00101			
172	172	Handle	1621-00101			
178	178	Pushbutton, Reset	1662-00701			
179	179	Pushbutton, Dial Light, Metal, Tape Selector, ALC, Fade	1662-00101			
180	180	Pushbutton, SW3, SW2, SW1, MW, FM, RIS/AFC	1662-00201			
182	182	Dial Pointer	1672-00201			
184	184	AC Voltage Select Plate	1722-00201			
185	185	Indicator Back Plate, Rec./VU	1723-00101			
191	191	Indicator Plate, SW3, SW2, SW1, MW, FM	1734-00101			
192	192	Indicator Plate, RIS/AFC	1734-00102			
196	196	Bushing, Electret Microphone (M1, 2)	2114-01218			
198	198	Bracket, Dial Drum	2219-899			
199	199	Bracket, Pulley	2219-765			
200	200	Bracket, Battery (+)	2219-619			
201	201	Bracket, Power Transformer (T801)	2219-7091			
202	202	Bracket, Tone Control Amp., Control Switch, Aux. IN/C. Mic. Switch and Pre/Tone Control Amp. P.C. Board	2219-1045			
203	203	Bracket, Power Transformer (T801)	2219-1046			
204	204	Bracket, Eject Mechanism	2219-1047			
205	205	Bracket, Dial Panel Assembly	2219-1048			
207	207	Bracket, Handle	2219-1050			
208	208	Bracket, Handle	2219-1051			
209	209	Bracket, DIN Jack	2219-5148			
210	210	Bracket, Dual Pulley	2219-1064			

[MODEL ST858]

SRE. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
211	211	Bracket, Power Switch (SW15)	2219-1069			
213	213	Holding Bracket, Lead Wire	2218-7001			
214	214	Bracket, Speaker (SP3, 4)	2214-5007			
216	216	Bushing, Cassette Compartment Cover	2114-01224			
225	225	Heat Sink, Power IC (IC551)	2222-84			
227	227	Dial Drum	2611-0347			
229	229	Pulley	2612-52273			
230	230	Dual Pulley	2612-5624			
232	232	Clutch, Eject Damper	2662-5015			
234	234	Lever, Eject Mechanism	2672-95			
236	236	Tuning Shaft	2602-060236			
239	239	Spring, Dial Drum	2651-110112			
241	241	Spring, Cassette Compartment Slot Assembly	2651-11201			
242	242	Coil Spring, Battery (–)	2651-22155			
243	243	Coil Spring, Battery (–)	2651-220111			
245	245	Spring, Power Knob	2651-210118			
248	248	Leaf Spring, Lamp Switch Mechanism	2652-00216			
251	251	Spacer, Rec./Play Amp. P.C. Board	2132-01406			
253	253	Shield Plate, Rec./Play Amp. P.C. Board	2216-217			
256	256	Bushing, Dial Drum	2363-50160			
257	257	Bushing, Power Knob	2363-50129			
258	258	Bushing	2363-50164			
263	263	Special Washer, Handle	2410-102			
266	266	Shaft, Dual Pulley	2601-7035			
269	269	Steel Ball, Power Knob	2711-010811			
271	271	E-Stop Ring (2.5ϕ)	2461-254			
273	273	Special Screw, Pulley	2320-11			
275	275	Special Screw, Cassette Compartment Cover	2310-7012			
301	301	Self-Tapping Screw (+) (3 x 16 mm)	2347-301621			
307	307	Hexagon Nut (M3)	2446-301Z9			
308	308	Rivet	2459-3003511			
106	316	Bracket, Cassette Tape Recorder	2219-1049			
107	317	Bracket, Rec./Play Switch (SW14)	2219-1063			
110	320	Spring, Rec./Play Switch (SW14)	2651-5083			
113	323	Shaft, Cassette Pushbuttons	2601-5092			
116	326	E-Stop Ring (4ϕ)	2461-404			
101	331	Holder, Variable Capacitor (VC1, 2, 3, 4)	2240-184			
103	333	Bar Antenna Holder	2241-5009			
106	336	Shield Plate, Tuner/IF Amp./MPX P.C. Board	2216-216			
116	346	Bracket, Ground	2218-20			
583	583	Spacer, R154/R312/R358/R412/D801	2132-5049			
829	829	Leaf Spring, Lamp Switch Mechanism	4214-85			

CASSETTE TAPE RECORDER EXPLODED VIEW [MRT14LV(F)]


104
167
204
203
2x5
210
103
161
167
0.25
229
425
189
114
201
231
422
200
021
423
165
426
206
237
420
229
236
101
209
208
208
243
245 RPH1
EH1 246
0.3
131 132 133
113
170
0.4
0.8
230
168
196
174
2.6x6
218
180
0.25
154
0.5
179
2x8
604
SW20
199
165
182
164
428
102
0.5
152
111
166
162
192
193
0.5
J
K
A
B
C
D
E
F
L
M
N


3x5
438
2x8
401
604
SW18
604
SW19
2x8
436
115
195
2x5
0.25
186
187
185
405
226
169
158
2.6x8
AUTO STOP DRIVE P.C. BOARD
612
613
163
0.25
166
0.21
156
111
3x5
R902
R919
D904
1
5.2
155
160
112
3x6
224
3x8
403
022
0.25
3x5
3x6
221
3x6
604
SW21
2x8
MO1
105
116
3x4
404
2x5
0.25
2x6
023
418
419
437
220
SW17
0.125
110
0.25
3x6
429
3x6
0.25
609
L901
413
424
0.25
G
H
O

NOTE : The notation "3x6" means the screw diameter is 3 mm ; its length is 6 mm.
The notation "0.5" means the washer thickness is 0.5 mm.

CASSETTE TAPE RECORDER PARTS LIST

[MODEL ST858]

SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
AA	101	Chassis Assembly	B211-MRT14LVA			
AB	102	Lever Assembly, Rec. Safety	B672-MRT14LVA			
AC	103	Slider Assembly, Play	B674-MRT14LVA			
AD	104	Slider Assembly, Pause	B674-MRT14LVB			
AEF	105 (MO1)	DC Motor Assembly (w/Pulley)	D311-MRT14LVB			
AFF	021	Slider Assembly, AQPS (F.F., Rew.) Pushbutton Lock	B674-MRT14LVC			
AGF	022	Bracket Assembly, Eject Lever	B219-MRT14LVA			
AHF	023	Bracket Assembly, Solenoid (L901)	B219-MRT14LVB			
101	110	Rubber Sleeve, Flywheel	1291-13			
103	111	Bushing, Rew. Idler and Pause Lever	2114-415052			
104	112	Bushing, Motor	2114-415066			
106	113	Spacer, Heads	2132-5088			
108	114	Brake Shoe, Reel Spindle Brake	2135-5004			
112	115	Bracket, Flywheel	2219-5466			
113F	116	Bracket, Tape Counter	2219-5601			
131	131	Special Washer, Head Height Adjustment	2410-5017			
132	132	Special Washer, Head Height Adjustment	2410-5018			
133	133	Special Washer, Head Height Adjustment	2410-5019			
152	152	Pinch Roller	2614-5020			
154	154	Idler, Play	2615-5019			
155	155	Idler, Rew.	2615-5025			
156	156	Clutch, F.F.	2662-5013			
158	158	Flywheel	2617-5118			
160	160	Belt, Rew. Idler-Supply Reel Spindle	2642-01433			
161	161	Spring, Brake	2651-5066			
162	162	Spring, Pause Lever	2651-5069			
163	163	Spring, F.F. Clutch	2651-110348			
164	164	Spring, Rec. Safety Lever	2651-1103405			
165	165	Spring, Eject Slider and Play Slider	2651-1103408			
166	166	Spring, Pinch Roller and Rew. Idler	2651-1103410			
167	167	Spring, Pause Slider and Stop Slider	2651-1103414			
168	168	Spring, Play Lever	2651-1103415			
169F	169	Spring, Eject Lever	2651-1103420			
170	170	Spring, Rec./Play Head	2651-210146			
174	174	Leaf Spring, Heads Slide Plate	2652-5097			
179	179	Take-Up Reel Spindle	2661-415029			
180	180	Supply Reel Spindle	2661-415030			
182	182	Steel Ball (2ϕ)	2711-002011			
185	185	Bearing, Flywheel	2712-5020			
186	186	Holder, Flywheel	2240-5090			
187	187	Spring, Flywheel	2651-210164			
189	189	Brake, Reel Spindles	2677-5005			
192	192	Lever, Pinch Roller	2672-5146			
193	193	Lever, Pause	2672-5196			
195F	195	Lever, Eject	2672-5253			
196	196	Lever, Play Starting	2672-5231			
199F	199	Slider	2674-5235			
200	200	Slider, Rec.	2674-5138			
201	201	Slider, Rew.	2674-5139			
203	203	Slider, Stop	2674-5141			
204	204	Slider, F.F.	2674-5142			
206	206	Slider, Eject	2674-5158			
208	208	Special Screw, Rec./Play and Erase Heads	2310-5010			
209	209	Special Screw, Rec./Play Head Azimuth Adjustment	2310-5012			
210	210	Special Screw, Play Slider	2320-5005			
218	218	E-Stop Ring (2.3ϕ)	2461-234			

SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
220	220 (SW17)	Spring Switch, Motor Power	4463-40			
221F	221	Bracket, Pause Switch	2215-5011			
224F	224	Bracket, Motor	2251-5030			
226F	226	Belt, Motor-Flywheel	2642-02408			
229F	229	Spring, Rec./Play Pushbutton Lock Slider and AQPS Lever	2651-110310			
230F	230	Spring, Play Damper	2651-1103431			
231F	231	Spring, Rec. Slider	2651-1103422			
236F	236	Slider, Pushbuttons Simultaneity Press Prevention	2674-5184			
237F	237	Slider, Rec./Play Pushbutton Lock	2674-5185			
243	243	Lug Terminal	4211-6			
245F	245 (RPH1)	Rec./Play Head	5874-1321			
246F	246 (EH1)	Erase Head	5873-1218			
401F	401	Bracket, AQPS Switches	2215-5010			
403F	403	Bracket, P.C. Board Holding	2219-5602			
404F	404	Bracket, Pulley	2219-5607			
405F	405	Holder, Eject Lever	2240-5124			
413F	413	Spring, Solenoid	2651-22202			
418F	418	Pulley, Take-Up Reel Spindle-Tape Counter Belt	2612-52642			
419F	419	Belt, Take-Up Reel Spindle-Tape Counter	2642-01440			
420F	420	Spring, F.F./Rew. Pushbutton Lock Slider Slider	2651-2101407			
422F	422	Lever, Cue	2672-5151			
423F	423	Lever, Review	2672-5152			
424F	424	Lever, Solenoid	2672-5251			
425F	425	Lever, AQPS	2672-5252			
426F	426	Slider, Cue	2674-5143			
428F	428	Slider, AQPS Switches	2674-5186			
429F	429	Spring Pin, Solenoid	2425-3012722			
436F	436	E-Stop Ring (4ϕ)	2461-40Z			
437F	437	Tape Counter	3131-325001			
438F	438	Holding Bracket, Lead Wire	2218-5003			
604F	604 (SW18–21)	Spring Switch, AQPS (F.F., Rew.), Amp. Power, Pause	4463-51			
609F	609 (L901)	DC Solenoid	4333-40112			
612F	612	Spacer for Diode (D904)	2132-7048			
613F	613	Spacer for Resistor (R902, R919)	2132-5049			

ALIGNMENT PROCEDURES

Equipment Required:

1. RF Signal Generator
2. DC Voltmeter
3. AC V.T.V.M.
4. AM Test Loop

General:

1. Signal input must be as low as possible to avoid overload and clipping. (Use highest sensitivity of output indicator.)
2. Volume control at maximum, Bass Treble and Balance controls at mechanical center of rotation.
3. Standard modulation is 400 Hz at 30% modulation (AM) and 1000 Hz at 22.5 kHz deviation (FM).
4. Connect AC V.T.V.M. across voice coil.
5. Set Radio switch to ON position.
6. Set RIS/AFC switch to OFF position.

MW ALIGNMENT

Step	Connect Signal Source To—	Connect Output Indicator To—	Set Signal Generator To—	Set Radio Dial To—	Adjust—	Adjust For—	Step
Depress MW Pushbutton							
1	Loop of several turns of wire connected across generator leads. Place loop close to the MW antenna (L7).	AC V.T.V.M. across Voice coil	455 kHz AM Mod.	Tuning gang open	T3, T4, T5	Maximum output on V.T.V.M.	1
2			525 kHz AM Mod.	525 kHz	L11		2
3			1600 kHz AM Mod.	1600 kHz	TC8		3
4	Repeat Steps 2 and 3 for optimum sensitivity.						4
5	Same as above	AC V.T.V.M. across Voice coil	600 kHz AM Mod.	Tune for signal	L7	Maximum output on V.T.V.M.	5
6			1400 kHz AM Mod.		TC7		6
7	Repeat Steps 5 and 6 for optimum sensitivity.						7

SW ALIGNMENT

Depress SW1 Pushbutton							
1	Loop of several turns of wire connected across generator leads. Place loop close to the SW1 antenna (L6).	AC V.T.V.M. across Voice coil	1.5 MHz AM Mod.	Tuning gang closed	L10	Maximum output on V.T.V.M.	1
2			4.8 MHz AM Mod.	Tuning gang open	TC11		2
3	Repeat Steps 1 and 2 for optimum sensitivity.						3
4	Same as above	AC V.T.V.M. across Voice coil	1.8 MHz AM Mod.	Tune for signal	L6	Maximum output on V.T.V.M.	4
5			4 MHz AM Mod.		TC3		5
6	Repeat Steps 4 and 5 for optimum sensitivity.						6
Depress SW2 Pushbutton							
1	Place generator leads across terminal of telescopic antenna (A1).	AC V.T.V.M. across Voice coil	4.3 MHz AM Mod.	Tuning gang closed	L9	Maximum output on V.T.V.M.	1
2			12.5 MHz AM Mod.	Tuning gang open	TC10		2
3	Repeat Steps 1 and 2 for optimum sensitivity.						3
4	Same as above	AC V.T.V.M. across Voice coil	5 MHz AM Mod.	Tune for signal	L5	Maximum output on V.T.V.M.	4
5			11 MHz AM Mod.		TC6		5
6	Repeat Step 4 and 5 for optimum sensitivity.						6

Step	Connect Signal Source To—	Connect Output Indicator To—	Set Signal Generator To—	Set Radio Dial To—	Adjust—	Adjust For—	Step
Depress SW3 Pushbutton							
1	Place generator leads across terminal of telescopic antenna (A1).	AC V.T.V.M. across Voice coil	11.5 MHz AM Mod.	Tuning gang closed	L8	Maximum output on V.T.V.M.	1
2			27.5 MHz AM Mod.	Tuning gang open	TC9		2
3	Repeat Steps 1 and 2 for optimum sensitivity.						3
4	Same as above	AC V.T.V.M. across Voice coil	13 MHz AM Mod.	Tune for signal	L4	Maximum output on V.T.V.M.	4
5			25 MHz AM Mod.		TC5		5
6	Repeat Steps 4 and 5 for optimum sensitivity.						6

FM ALIGNMENT

Since a ceramic filter is used instead of transformer coupled IF stages, preadjustment to the natural resonant frequency of the ceramic filter is required. Proceed as follows:

1. Depress FM pushbutton.
2. Tune radio to a no-signal point on the dial where no station is received.
3. Connect V.T.V.M. across voice coil.
4. Connect loop consisting of several turns of wire across signal generator leads. Place loop close enough to couple signal into the IF trap coil (L2).
5. Rock signal generator for maximum output on V.T.V.M. This will occur at approximately 10.7 MHz.

Depress FM pushbutton							
1	Loop of several turns of wire connected across generator leads. Place loop close to the IF trap coil (L2).	AC V.T.V.M. across Voice coil	Preset IF frequency (FM Mod.)	Tuning gang closed	T1	Maximum output on V.T.V.M.	1
2		DC voltmeter across C87	Preset IF frequency (Unmod.)		T2	Zero reading, a positive or negative reading will be obtained on either side of correct setting.	2
3	Repeat Steps 1 and 2 for optimum sensitivity.						3
4	Place generator leads across terminal of telescopic antenna (A2).	AC V.T.V.M. across Voice coil	88 MHz FM Mod.	88 MHz	L3	Maximum output on V.T.V.M.	4
5			108 MHz FM Mod.	108 MHz	TC2		5
6	Repeat Steps 4 and 5 for optimum sensitivity.						6
7	Same as above	Same as above	90 MHz FM Mod.	Tune for signal	L1	Maximum output on V.T.V.M.	7
8			106 MHz FM Mod.		TC1		8
9	Repeat Steps 7 and 8 for optimum sensitivity.						9

MULTIPLEX ALIGNMENT

Equipment Required :

1. FM-Stereo generator
2. AC V.T.V.M.
3. Frequency Counter

MULTIPLEX 19 kHz Osc. ADJUSTMENT

1	Place generator leads across terminal of telescopic antenna (A2).	Frequency counter across TP (A) and ground	98 MHz 1 kHz 100% Mod. 60 dB MONAURAL signal	Tune for signal	VR1	19 kHz ±100 Hz on frequency counter	1

MULTIPLEX SEPARATION ADJUSTMENT

Because of the inherent frequency stability of the unit, the frequency output is constant over a large portion of the range of the potentiometer.

One rough method of setting the internal oscillator frequency is simply to tune for the center of the range at which the stereo light comes on. A much better method is to use equipment to check for channel separation, and to set the control for best separation. This is easily done with a dual channel millivolt meter and a multiplex generator.

Proceed as follows. Depress FM pushbutton and set the MODE switch to STEREO position:

1. Tune the receiver to the output of the FM stereo generator (approximately 100 MHz).
2. Set the generator for L + R modulation.
3. Adjust the receiver balance control for equal output on both channels with output meters connected across the voice coils.
4. Set multiplex generator for left only output.
5. Adjust the control VR2 on the IC chip for maximum separation.
6. Change generator for right only output and touch up the adjustment of the control (VR2) for best separation.

POWER INDICATOR LEVEL ADJUSTMENT

Equipment Required: DC Power Supply Regulator

NOTE: Set Power switch to ON position.

Step	Connect Regulator To–	Set Regulator To–	Adjust	Adjust For-
1	Place regulator leads across battery terminals.	10.5 V	VR851	Power indicator L.E.D. lights
2	Confirm that power indicator L.E.D. light goes off when the regulator is 9.5V.			

CASSETTE TAPE RECORDER ADJUSTMENT

Equipment Required:

1. AC V.T.V.M.
2. Frequency Counter
3. Test Tape (TEAC MTT-114, MTT-111, MTT-112B)

General Condition:

1. Set Radio switch to OFF position.
2. Set Aux. IN/C. Mic. switch to C. Mic. position.
3. Set Mode switch to STEREO position.
4. Set Tape Selector switch to Normal (button out) position.
5. Set Metal switch to OFF (button out) position.
6. Recording Level Controls at minimum.

HEAD AZIMUTH ADJUSTMENT

Equipment Required: Dual Channel AC V.T.V.M. and 10 kHz Test Tape (TEAC MTT-114)

1. Connect dual channel AC V.T.V.M. to both left and right TAPE OUT jacks (J6 and J7).
2. Play back the "A" side of the test tape and adjust Head Azimuth Adjustment Screw so that the output indicated by the AC V.T.V.M. will be maximum and the difference of output between left and right becomes less than 3 dB.
3. Play back the "B" side of the test tape and adjust Head Azimuth Adjustment Screw for maximum output.
4. Repeat steps 2 and 3, and adjust Head Azimuth Adjustment Screw until the difference of outputs from side "A" and side "B" becomes less than 2 dB.

TAPE SPEED ADJUSTMENT

Equipment Required : Frequency Counter and 3 kHz Test Tape (TEAC MTT-111)

1. Connect frequency counter to left or right TAPE OUT jack (J6 or J7).
2. Play back the test tape and adjust the variable resistor built-in the DC motor for 3 kHz(±2%). In this adjustment, use the central portion of the test tape.

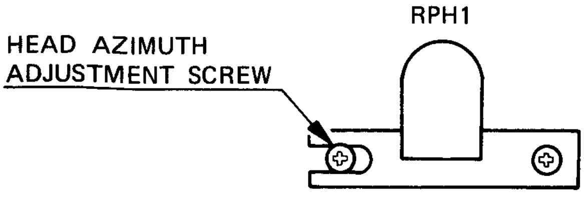


Fig. 1

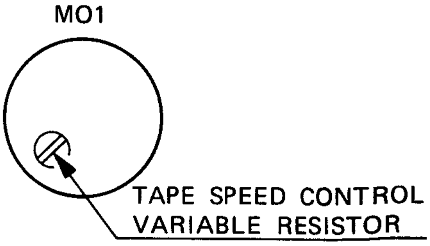


Fig. 2

PLAYBACK LEVEL ADJUSTMENT

Equipment Required: Dual Channel AC V.T.V.M. and Test Tape (TEAC MTT-112B)

1. Connect dual channel AC V.T.V.M. to TAPE OUT jacks (J6 and J7).
2. Play back the test tape and adjust VR231 so that the output will be 270 mV ±40 mV.
3. Adjust VR231 so that the output Rch will be same equal.

RECORD BIAS FREQUENCY ADJUSTMENT

Equipment Required: Frequency Counter

1. Connect a frequency counter to TP1 and TP2 (ground).
2. Set the Beat Cancel (RIS/AFC) switch to OFF position (button out).
3. Set the Metal switch to ON position.
4. Start the recorder in the recording mode. Adjust OS1 so that the frequency counter reads 85 kHz.
5. Set the Beat Cancel (RIS/AFC) switch to ON position (button in) and adjust OS1 so that the frequency counter reads 82 kHz.

RECORD BIAS TRAP ADJUSTMENT

Equipment Required: AC V.T.V.M.

1. Connect on AC V.T.V.M. to TP1 and TP2 (ground).
2. Adjust L131 so that the V.T.V.M. reads maximum output with constant value when the Beat Cancel (RIS/AFC) switch is at both positions ON and OFF.
3. Connect on AC V.T.V.M. to TP3 and TP2 (ground).
4. Adjust L231 so that the V.T.V.M. reads maximum output with constant value when the Beat Cancel (RIS/AFC) switch is at both positions ON and OFF.

RECORD BIAS LEVEL ADJUSTMENT

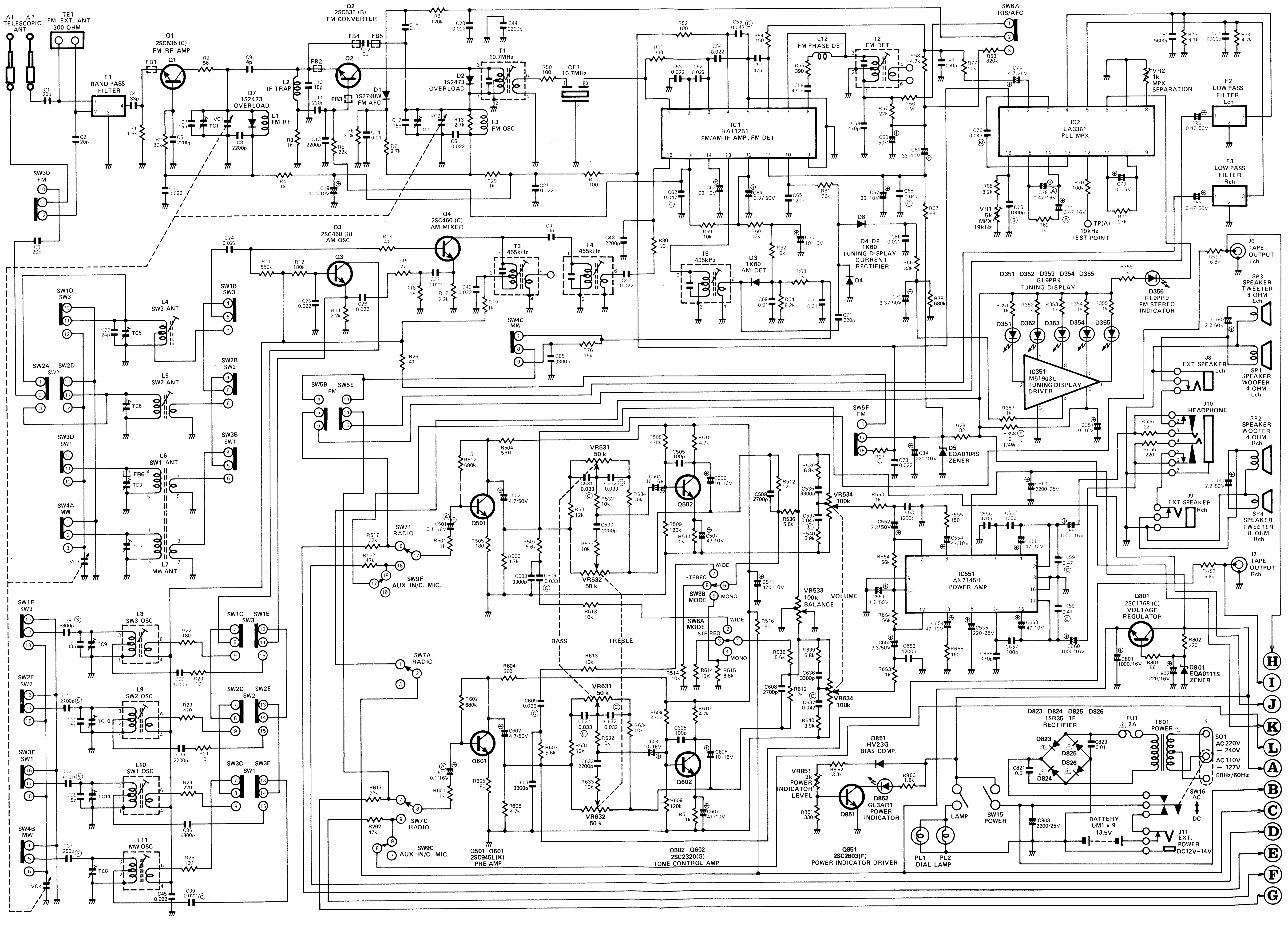
Equipment Required: AC V.T.V.M.

1. Connect on AC V.T.V.M. to TP1 and TP2 (ground).
2. Set the Tape Selector switch to NORMAL position.
3. Start the recorder in the recording mode. Adjust VR171 so that the V.T.V.M. reads 17 mV.
4. Connect on AC V.T.V.M. to TP3 and TP2 (ground).
5. Start recorder in the recording mode. Adjust VR271 so that the V.T.V.M. reads 17 mV.

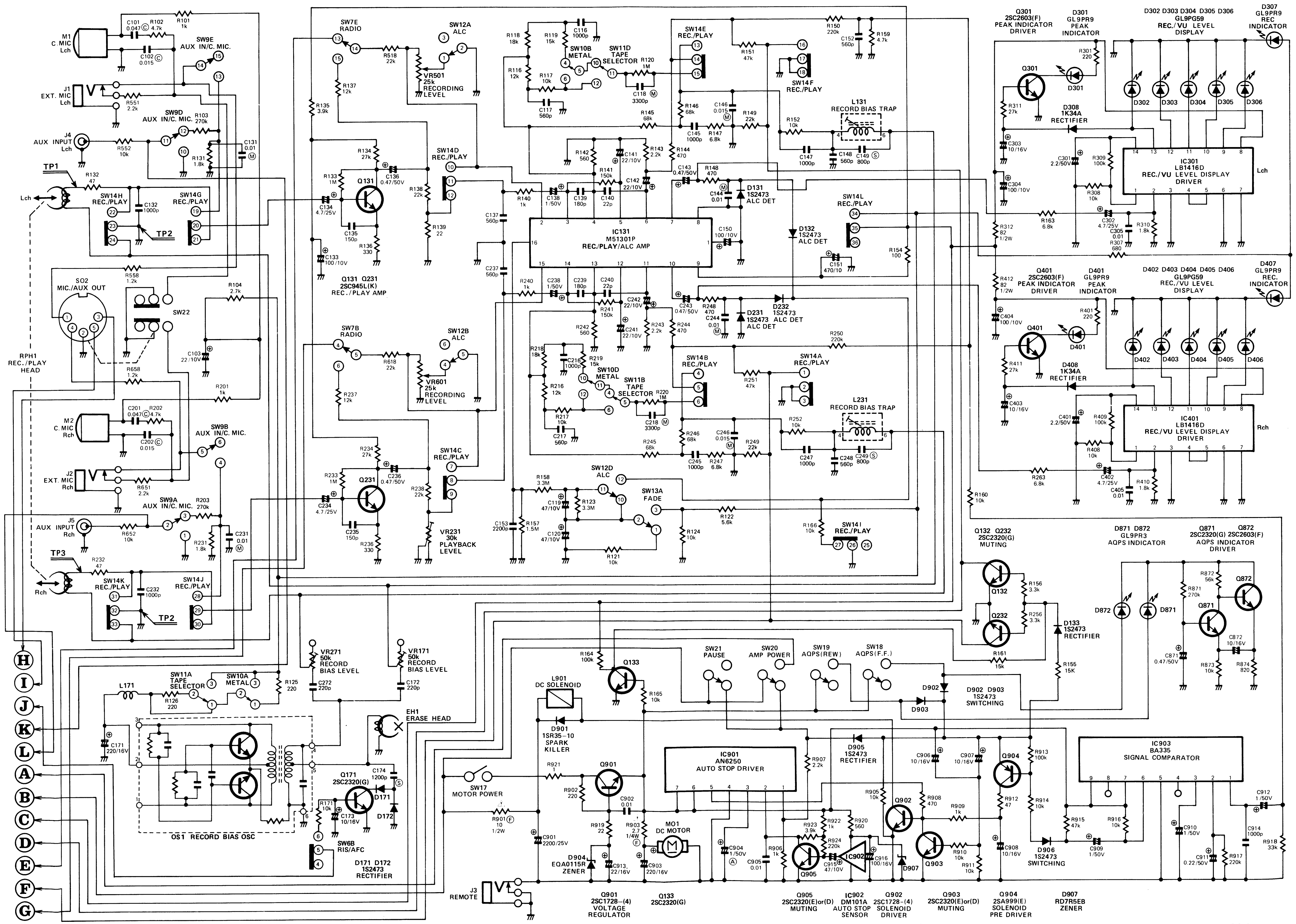
SCHEMATIC DIAGRAM NOTES :

1. All resistors are carbon unless otherwise noted.
   Ⓒ : Cement
   Ⓕ : Fuse
   Ⓜ : Metal
   Ⓢ : Solid
2. All resistance values are in ohms.
   k=1000, M=1000k
3. The wattage of resistor is 1/4W unless otherwise noted.
4. The marks of capacitors are as follows:
   $\frac{\perp}{\top}$: Ceramic
   $\frac{\perp}{\top}^{\oplus}$: Electrolytic
   Ⓐ : Al. Solid
   Ⓒ : Semiconductor
   Ⓔ : Metalized Polyester
   Ⓘ : Mica
   Ⓜ : Mylar
   Ⓟ : Polypropylene
   Ⓢ : Stylor
   Ⓣ : Tantalum Electrolytic
5. All capacitance values are in μF unless otherwise noted.
   pF=μμF
6. The DC work voltage of capacitor is 50V unless otherwise noted.
7. This is a standard schematic diagram. Some set may be modified slightly for better perfomance.

SCHEMATIC DIAGRAM

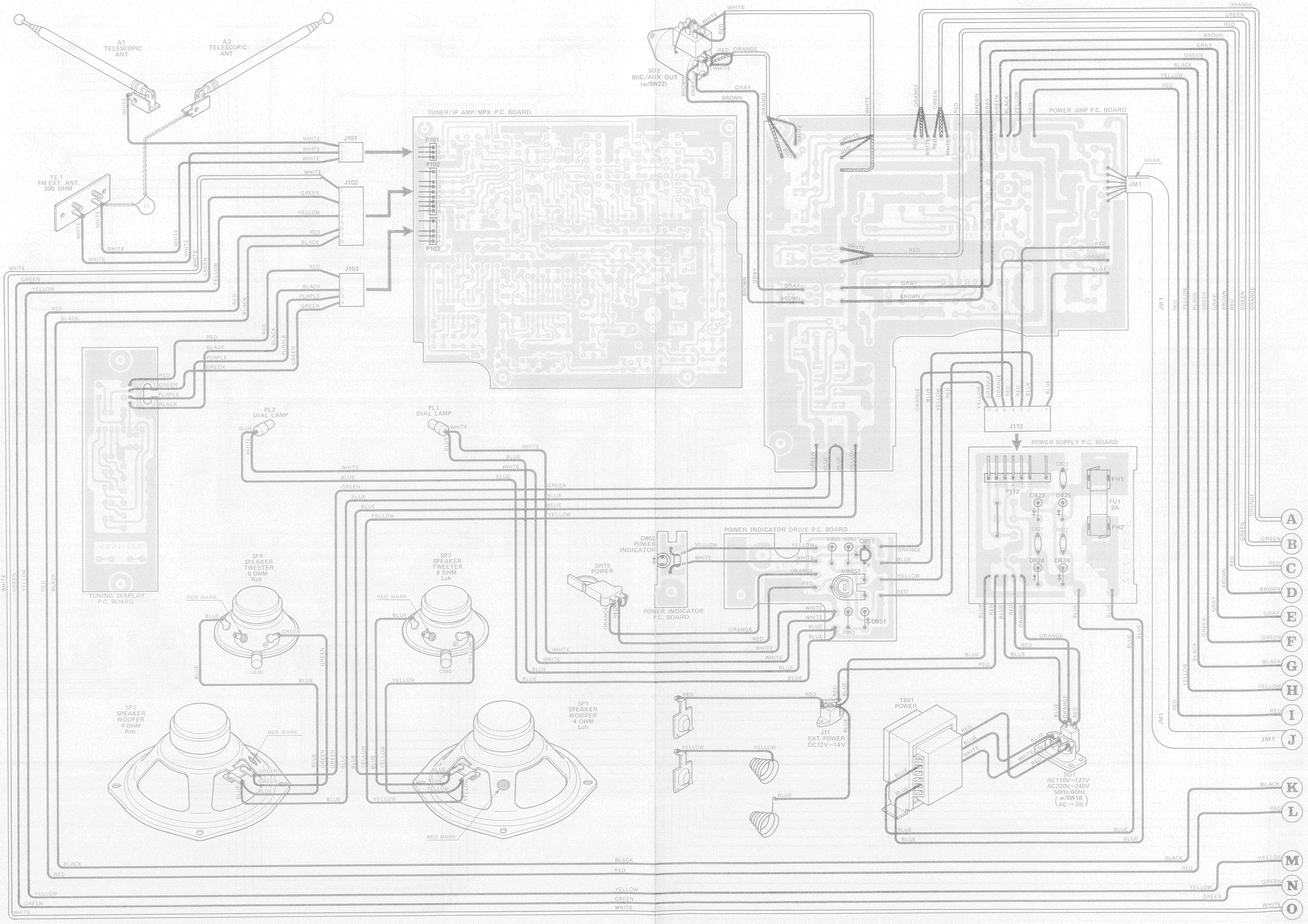

A1 A2 TELESCOPIC ANT
TE1 FM EXT. ANT 300 OHM
F1 BAND PASS FILTER
Q1 2SC535 (C) FM RF AMP
Q2 2SC535 (B) FM CONVERTER
D7 1S2473 OVERLOAD
L1 FM RF
L2 IF TRAP
D2 1S2473 OVERLOAD
D1 1S2790W FM AFC
L3 FM OSC
T1 10.7MHz
CF1 10.7MHz
IC1 HA11251 FM/AM IF AMP, FM DET
L12 FM PHASE DET
T2 FM DET.
SW6A RIS/AFC
VR2 1k MPX SEPARATION
IC2 LA3361 PLL MPX
F2 LOW PASS FILTER Lch
F3 LOW PASS FILTER Rch
VR1 5k MPX 19kHz
TP(A) 19kHz TEST POINT
SW5D FM
Q3 2SC460 (B) AM OSC
Q4 2SC460 (C) AM MIXER
T3 455kHz
T4 455kHz
T5 455kHz
D3 1K60 AM DET
D4 D8 1K60 TUNING DISPLAY CURRENT RECTIFIER
J6 TAPE OUTPUT Lch
D351 D352 D353 D354 D355 GL9PR9 TUNING DISPLAY
D356 GL9PR9 FM STEREO INDICATOR
SP3 SPEAKER TWEETER 8 OHM Lch
SW1D SW3
L4 SW3 ANT
SW1B SW3
SW4C MW
IC351 M51903L TUNING DISPLAY DRIVER
J8 EXT. SPEAKER Lch
SP1 SPEAKER WOOFER 4 OHM Lch
SW2A SW2D SW2
L5 SW2 ANT
SW2B SW2
SW5B SW5E FM
J10 HEADPHONE
SP2 SPEAKER WOOFER 4 OHM Rch
SW3D SW1
L6 SW1 ANT
FB6
SW3B SW1
SW5F FM
D5 EQA0108S ZENER
VR531 50 k
VR534 100k
SW4A MW
L7 MW ANT
SW7F RADIO
SW9F AUX IN/C. MIC.
VR532 50 k
STEREO WIDE MONO
SW8B MODE
VR533 100k BALANCE
VOLUME
IC551 AN7145H POWER AMP
J9 EXT SPEAKER Rch
SP4 SPEAKER TWEETER 8 OHM Rch
J7 TAPE OUTPUT Rch
SW1F SW3
L8 SW3 OSC
SW1C SW1E SW3
SW8A MODE
BASS TREBLE
Q801 2SC1368 (C) VOLTAGE REGULATOR
D801 EQA0111S ZENER
SW2F SW2
L9 SW2 OSC
SW2C SW2E SW2
SW7A RADIO
VR631 50 k
VR634 100k
SW3F SW1
L10 SW1 OSC
SW3C SW3E SW1
D851 HV23G BIAS COMP.
VR851 3k POWER INDICATOR LEVEL
Q851
D852 GL3AR1 POWER INDICATOR
D823 D824 D825 D826 1SR35-1F RECTIFIER
FU1 2A
T801 POWER
SO1 AC220V – 240V AC110V – 127V 50Hz/60Hz
SW16 AC DC
SW4B MW
L11 MW OSC
SW7C RADIO
SW9C AUX IN/C. MIC.
VR632 50 k
LAMP
SW15 POWER
PL1 PL2 DIAL LAMP
BATTERY UM1 x 9 13.5V
J11 EXT. POWER DC12V–14V
Q501 Q601 2SC945L(K) PRE AMP
Q502 Q602 2SC2320(G) TONE CONTROL AMP
Q851 2SC2603(F) POWER INDICATOR DRIVER
H
I
J
K
L
A
B
C
D
E
F
G

SCHEMATIC DIAGRAM


M1
C.MIC
Lch
C101 0.047 Ⓒ
R102 4.7k
R101 1k
C102 Ⓒ 0.015
SW9E
AUX IN/C. MIC.
J1
EXT. MIC
Lch
R551 2.2k
SW9D
AUX IN/C. MIC.
R103 270k
J4
AUX INPUT
Lch
R552 10k
R131 1.8k
C131 0.01 Ⓜ
TP1
R132 47
SW14H
REC./PLAY
C132 1000p
SW14G
REC./PLAY
TP2
SO2
MIC./AUX OUT
R558 1.2k
SW22
R104 2.7k
C103 22/10V
RPH1
REC./PLAY
HEAD
R658 1.2k
R201 1k
M2
C. MIC
Rch
C201 0.047 Ⓒ
R202 4.7k
C202 Ⓒ 0.015
SW9B
AUX IN/C. MIC.
J2
EXT. MIC
Rch
R651 2.2k
SW9A
AUX IN/C. MIC.
R203 270k
J5
AUX INPUT
Rch
R652 10k
R231 1.8k
C231 0.01 Ⓜ
TP3
R232 47
SW14K
REC./PLAY
C232 1000p
SW14J
REC./PLAY
Lch
Rch
SW7E
RADIO
R518 22k
SW12A
ALC
VR501
25k
RECORDING
LEVEL
R135 3.9k
R137 12k
R134 27k
R133 1M
C136 0.47/50V
Q131
C134 4.7/25V
C135 150p
R136 330
C133 100/10V
R138 22k
R139 22
SW14D
REC./PLAY
Q131 Q231
2SC945L(K)
REC./PLAY AMP
SW7B
RADIO
R618 22k
SW12B
ALC
VR601
25k
RECORDING
LEVEL
R237 12k
R234 27k
R233 1M
C236 0.47/50V
Q231
C234 4.7/25V
C235 150p
R236 330
R238 22k
SW14C
REC./PLAY
VR231
30k
PLAYBACK
LEVEL
R118 18k
R119 15k
C116 1000p
SW10B
METAL
SW11D
TAPE
SELECTOR
R120 1M
R116 12k
R117 10k
C117 560p
C118 Ⓜ 3300p
SW14E
REC./PLAY
R150 220k
C152 560p
R159 4.7k
R151 47k
SW14F
REC./PLAY
R146 68k
C146 0.015 Ⓜ
R149 22k
R145 68k
C145 1000p
R147 6.8k
R152 10k
L131
RECORD BIAS TRAP
C147 1000p
C148 560p
C149 Ⓢ 800p
R142 560
C141 22/10V
R141 150k
R143 2.2k
R144 470
C142 22/10V
C143 0.47/50V
R148 470
D131 1S2473 ALC DET
C144 0.01 Ⓜ
R140 1k
C138 1/50V
C139 180p
C140 22p
C137 560p
IC131
M51301P
REC./PLAY/ALC AMP
C150 100/10V
D132 1S2473 ALC DET
SW14L
REC./PLAY
C151 470/10
R154 100
C237 560p
R240 1k
C238 1/50V
C239 180p
C240 22p
C242 22/10V
R241 150k
C243 0.47/50V
R248 470
C244 0.01 Ⓜ
D231 1S2473 ALC DET
D232 1S2473 ALC DET
R242 560
C241 22/10V
R243 2.2k
R244 470
R250 220k
R218 18k
C216 1000p
R219 15k
SW10D
METAL
SW11B
TAPE
SELECTOR
R220 1M
R216 12k
R217 10k
C217 560p
C218 Ⓜ 3300p
SW14B
REC./PLAY
R251 47k
SW14A
REC./PLAY
L231
RECORD BIAS TRAP
R252 10k
R246 68k
C246 0.015 Ⓜ
R249 22k
R245 68k
C245 1000p
R247 6.8k
C247 1000p
C248 560p
C249 Ⓢ 800p
SW12D
ALC
R158 3.3M
C119 47/10V
R123 3.3M
SW13A
FADE
R122 5.6k
C153 2200p
R157 1.5M
C120 47/10V
R124 10k
R121 10k
R166 10k
SW14I
REC./PLAY
Q301
2SC2603(F)
PEAK INDICATOR
DRIVER
D301
GL9PR9
PEAK
INDICATOR
D302 D303 D304 D305 D306
GL9PG59
REC./VU LEVEL
DISPLAY
D307
GL9PR9
REC
INDICATOR
R301 220
R311 27k
D308
1K34A
RECTIFIER
C303 10/16V
C301 2.2/50V
R309 100k
IC301
LB1416D
REC./VU LEVEL DISPLAY
DRIVER
Lch
C304 100/10V
R308 10k
R312 82 1/2W
R163 6.8k
C302 4.7/25V
C305 0.01
R307 680
R310 1.8k
R412 82 1/2W
Q401
2SC2603(F)
PEAK INDICATOR
DRIVER
D401
GL9PR9
PEAK
INDICATOR
D402 D403 D404 D405 D406
GL9PG59
REC./VU LEVEL
DISPLAY
D407
GL9PR9
REC.
INDICATOR
R401 220
C404 100/10V
R411 27k
D408
1K34A
RECTIFIER
C403 10/16V
C401 2.2/50V
R409 100k
IC401
LB1416D
REC./VU LEVEL DISPLAY
DRIVER
Rch
R408 10k
R263 6.8k
C402 4.7/25V
C405 0.01
R410 1.8k
R160 10k
Q132 Q232
2SC2320(G)
MUTING
R156 3.3k
R256 3.3k
D133
1S2473
RECTIFIER
R161 15k
R155 15K
D871 D872
GL9PR3
AQPS INDICATOR
Q871 Q872
2SC2320(G) 2SC2603(F)
AQPS INDICATOR
DRIVER
R872 56k
R871 270k
C871 0.47/50V
C872 10/16V
R873 10k
R874 820
H
I
J
K
L
A
B
C
D
E
F
G
VR271
50k
RECORD
BIAS LEVEL
VR171
50k
RECORD
BIAS LEVEL
L171
SW11A
TAPE
SELECTOR
SW10A
METAL
R126 220
R125 220
C272 220p
C172 220p
C171 220/16V
EH1
ERASE HEAD
OS1 RECORD BIAS OSC
Q171
2SC2320(G)
C174 1200p Ⓢ
D171
D172
R171 10k
C173 10/16V
SW6B
RIS/AFC
D171 D172
1S2473
RECTIFIER
R164 100k
Q133
R165 10k
L901
DC SOLENOID
D901
1SR35-10
SPARK
KILLER
SW17
MOTOR POWER
R921 1
Q901
R902 220
C902 0.01
R901 Ⓕ 10 1/2W
C901 2200/25V
R919 22
R903 2.7 1/4W Ⓕ
MO1
DC MOTOR
D904
EQA0115R
ZENER
C913 22/16V
C903 220/16V
J3
REMOTE
Q901
2SC1728-(4)
VOLTAGE
REGULATOR
Q133
2SC2320(G)
SW21
PAUSE
SW20
AMP POWER
SW19
AQPS(REW)
SW18
AQPS(F.F.)
D902
D903
D902 D903
1S2473
SWITCHING
IC901
AN6250
AUTO STOP DRIVER
R907 2.2k
D905
1S2473
RECTIFIER
C904 1/50V Ⓐ
C905 0.01
R906 1k
R923 3.9k
R922 1k
R920 560
R924 220k
C915 47/10V
IC902
C916 100/16V
D907
Q905
R905 10k
Q902
R908 470
R909 1k
Q903
R910 10k
R911 10k
C906 10/16V
C907 10/16V
Q904
R913 100k
R912 47
R914 10k
C908 10/16V
D906
1S2473
SWITCHING
R915 47k
R916 10k
C909 1/50V
IC903
BA335
SIGNAL COMPARATOR
C910 1/50V
C911 0.22/50V
R917 220k
C912 1/50V
C914 1000p
R918 33k
Q905
2SC2320(E)or(D)
MUTING
IC902
DM101A
AUTO STOP
SENSOR
Q902
2SC1728-(4)
SOLENOID
DRIVER
Q903
2SC2320(E)or(D)
MUTING
Q904
2SA999(E)
SOLENOID
PRE DRIVER
D907
RD7R5EB
ZENER

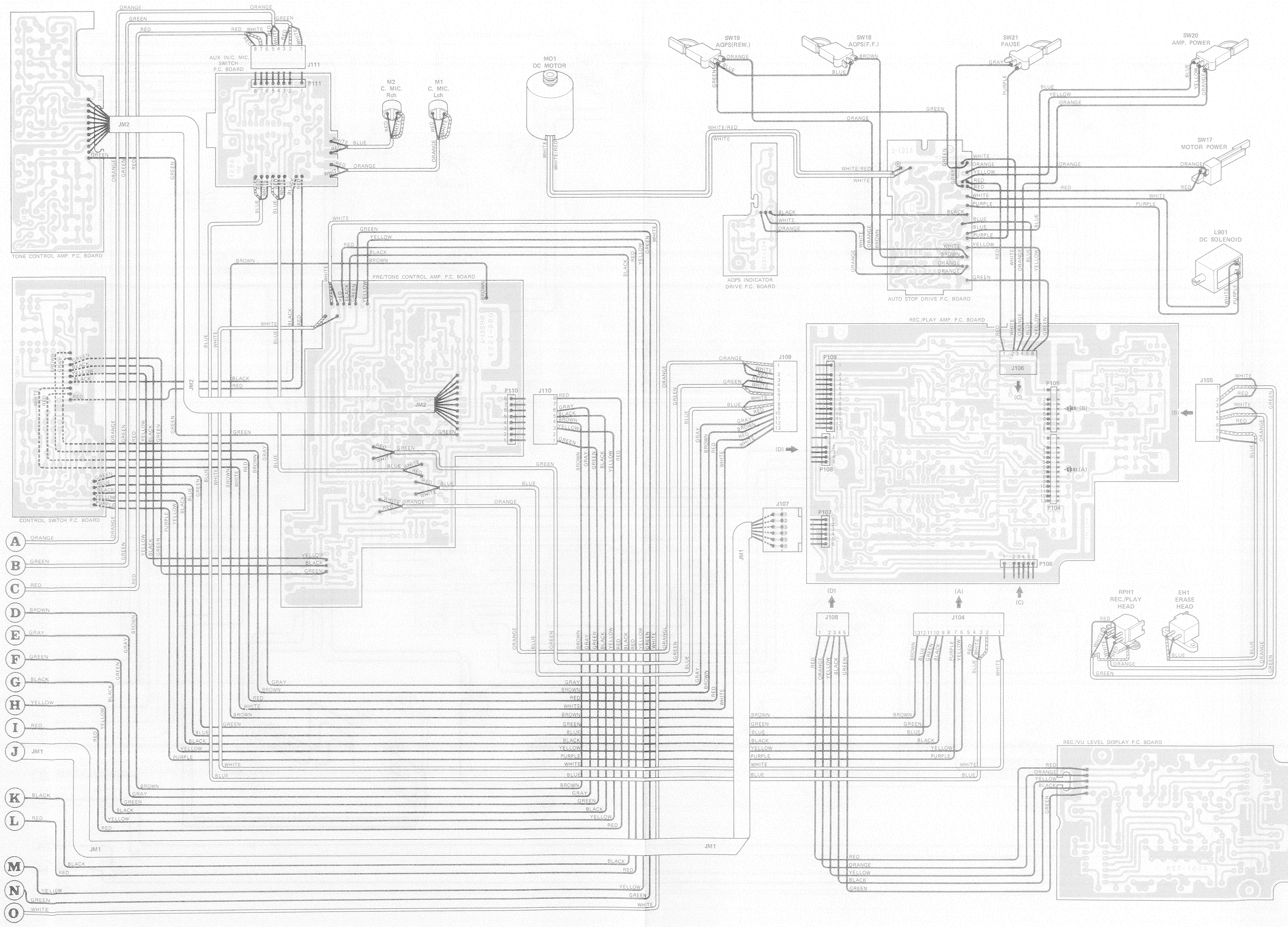
⚠ SAFETY-REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS, THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

WIRING DIAGRAM



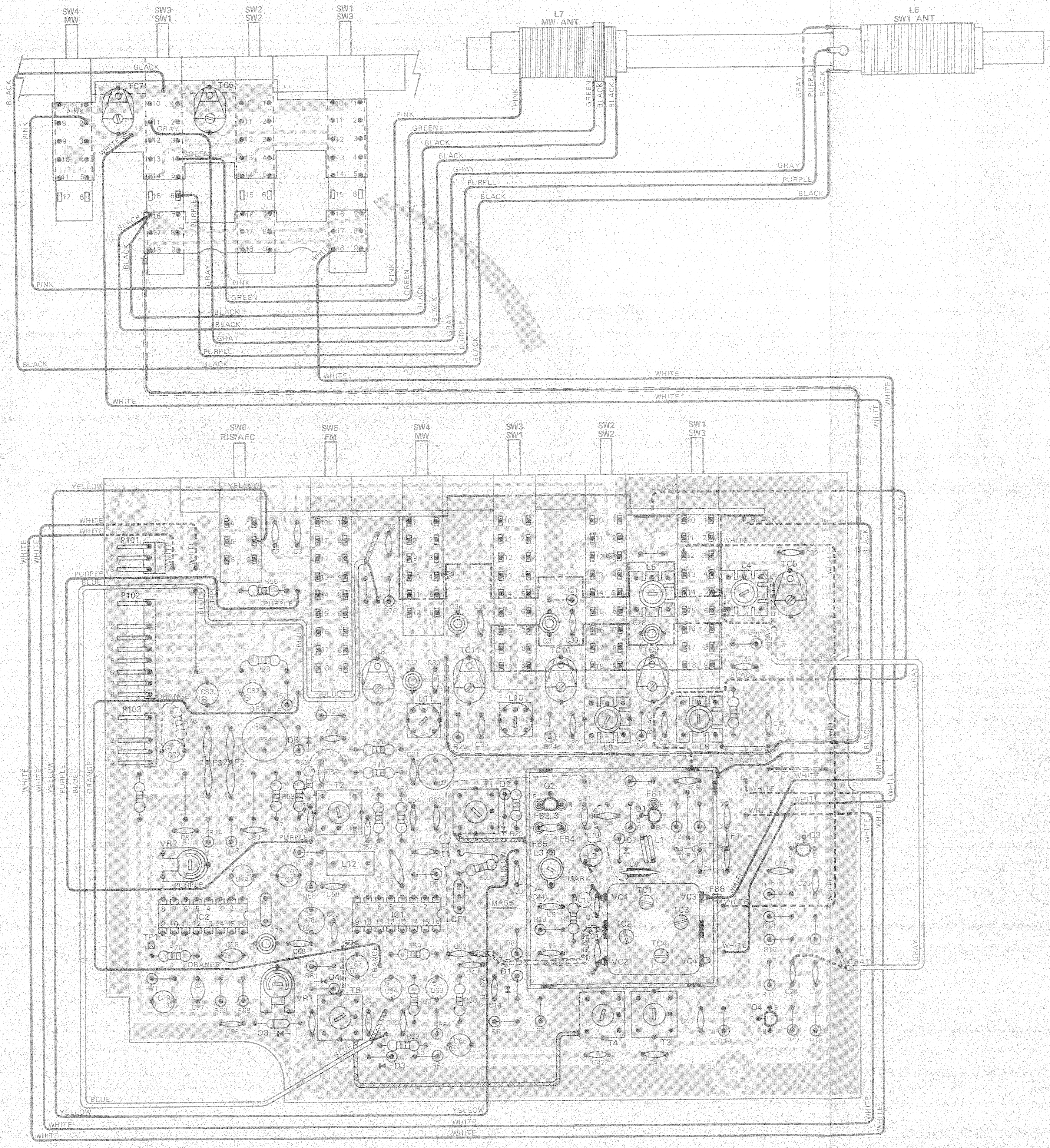
A1 TELESCOPIC ANT
A2 TELESCOPIC ANT
TE1 FM EXT. ANT 300 OHM
C1
J101
J102
J103
P101
P102
P103
TUNER/IF AMP/MPX P.C. BOARD
SO2 MIC./AUX OUT (w/SW22)
POWER AMP P.C. BOARD
JM1
MARK
J112
POWER SUPPLY P.C. BOARD
P112
C823
C821
C822
D823
D825
D824
D826
FH1
FH2
FU1 2A
TUNING DISPLAY P.C. BOARD
PL2 DIAL LAMP
PL1 DIAL LAMP
D852 POWER INDICATOR
POWER INDICATOR DRIVE P.C. BOARD
POWER INDICATOR P.C. BOARD
R853
R851
Q851
VR851
R852
D851
SW15 POWER
SP4 SPEAKER TWEETER 8 OHM Rch
SP3 SPEAKER TWEETER 8 OHM Lch
C680
C580
SP2 SPEAKER WOOFER 4 OHM Rch
SP1 SPEAKER WOOFER 4 OHM Lch
RED MARK
J11 EXT. POWER DC12V~14V
T801 POWER
SO1 AC110V~127V AC220V~240V 50Hz/60Hz (w/SW16 (AC ↔ DC)
WHITE
GREEN
YELLOW
RED
BLACK
PURPLE
BLUE
ORANGE
GRAY
BROWN
JM1
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O

WIRING DIAGRAM

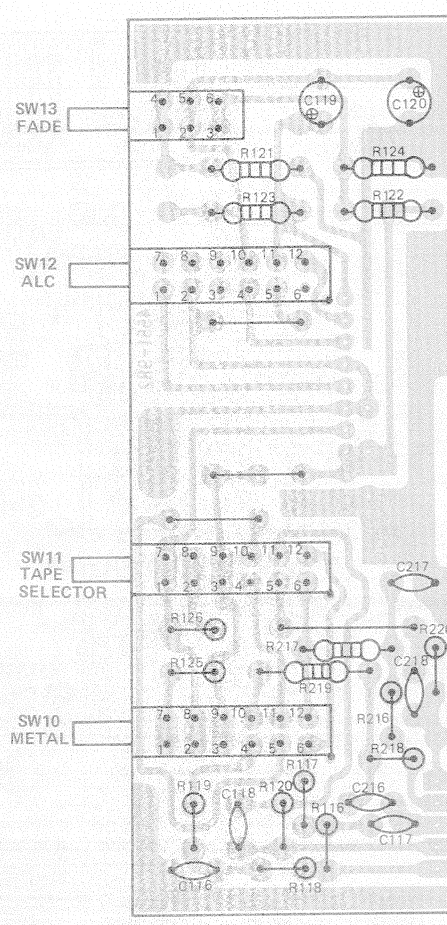


TONE CONTROL AMP. P.C. BOARD
CONTROL SWITCH P.C. BOARD
AUX IN/C. MIC. SWITCH P.C. BOARD
J111
P111
M2
C. MIC.
Rch
M1
C. MIC.
Lch
MO1
DC MOTOR
JM2
JM1
PRE/TONE CONTROL AMP. P.C. BOARD
P110
J110
SW19
AQPS(REW.)
SW18
AQPS(F.F.)
SW21
PAUSE
SW20
AMP. POWER
SW17
MOTOR POWER
L901
DC SOLENOID
AQPS INDICATOR DRIVE P.C. BOARD
AUTO STOP DRIVE P.C. BOARD
REC./PLAY AMP. P.C. BOARD
J109
P109
J106
P105
J105
P108
J107
P107
P104
P106
J108
J104
(A)
(B)
(C)
(D)
RPH1
REC./PLAY HEAD
EH1
ERASE HEAD
REC./VU LEVEL DISPLAY P.C. BOARD
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O

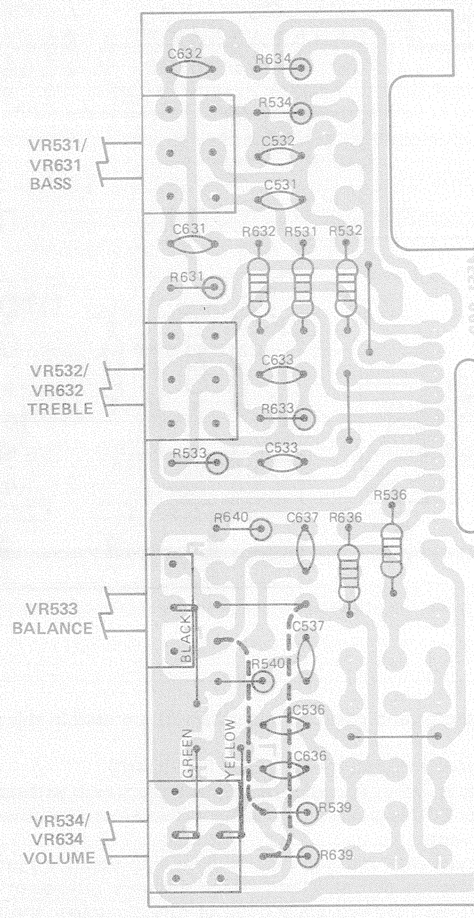
TUNER/IF AMP./MPX P.C. BOARD


SW4 MW
SW3 SW1
SW2 SW2
SW1 SW3
L7 MW ANT
L6 SW1 ANT
TC7
TC6
SW6 RIS/AFC
SW5 FM
SW4 MW
SW3 SW1
SW2 SW2
SW1 SW3
P101
P102
P103
TC8
TC11
TC10
TC9
L5
L4
TC5
L11
L10
L9
L8
T2
T1
Q2
Q1
Q3
Q4
FB1
FB2, 3
FB4
FB5
FB6
L3
L1
L12
IC1
IC2
CF1
VR1
VR2
TP1
T3
T4
T5
VC1
VC2
VC3
VC4
TC1
TC2
TC3
TC4
D1
D2
D3
D4
D5
D7
D8
F1
F2
F3
MARK
BLACK
PINK
GREEN
GRAY
PURPLE
WHITE
YELLOW
BLUE
ORANGE

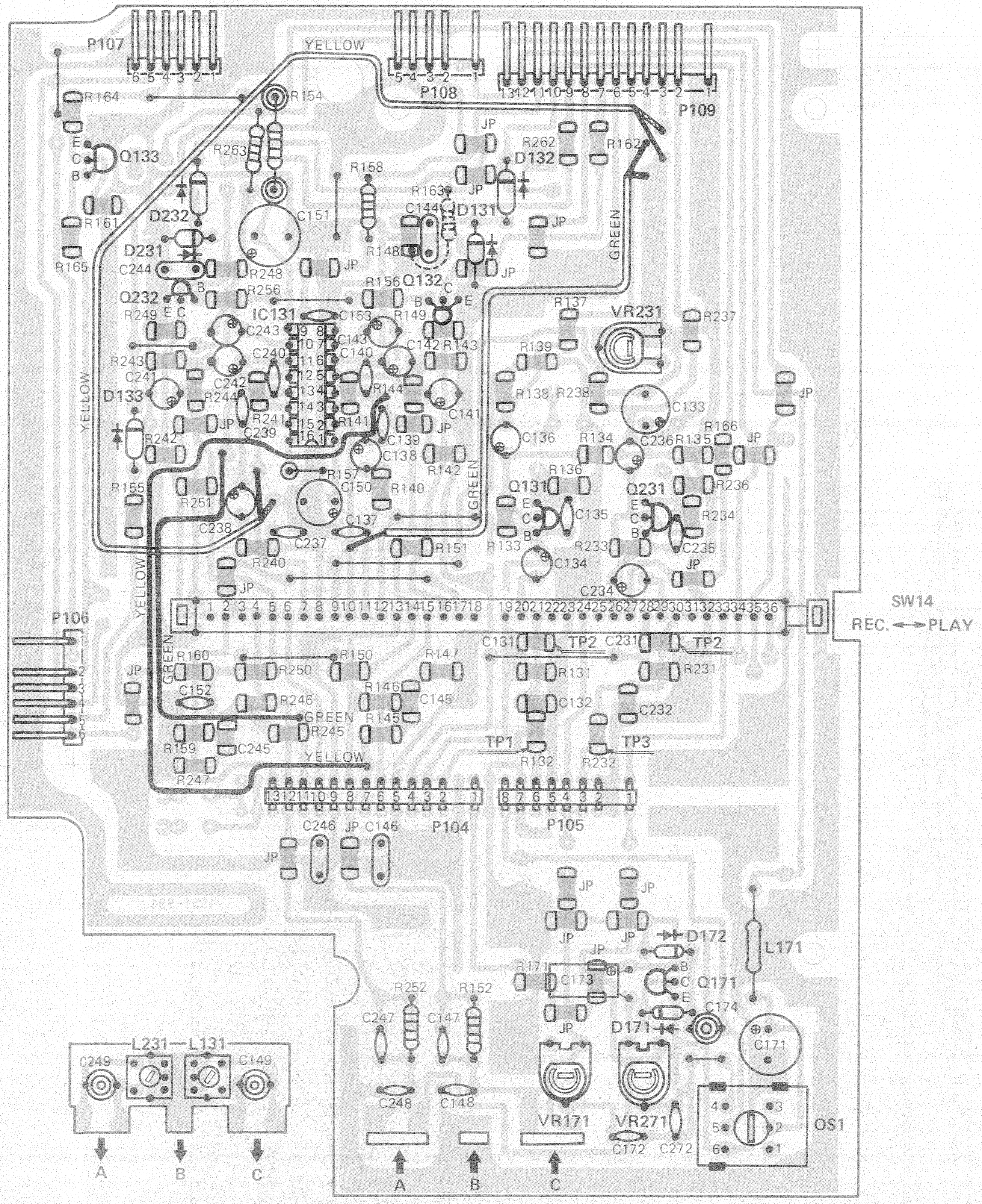
CONTROL SWITCH P.C. BOARD


SW13 FADE
SW12 ALC
SW11 TAPE SELECTOR
SW10 METAL
C119
C120
R121
R124
R123
R122
C217
R126
R217
R220
R125
R219
C218
R216
R218
R117
R119
C118
R120
R116
C216
C117
C116
R118

TONE CONTROL P.C. BOARD


VR531/ VR631 BASS
VR532/ VR632 TREBLE
VR533 BALANCE
VR534/ VR634 VOLUME
C632
R634
R534
C532
C531
C631
R632
R531
R532
R631
C633
R633
R533
C533
R640
C637
R636
R536
C537
R540
C536
C636
R539
R639
BLACK
GREEN
YELLOW

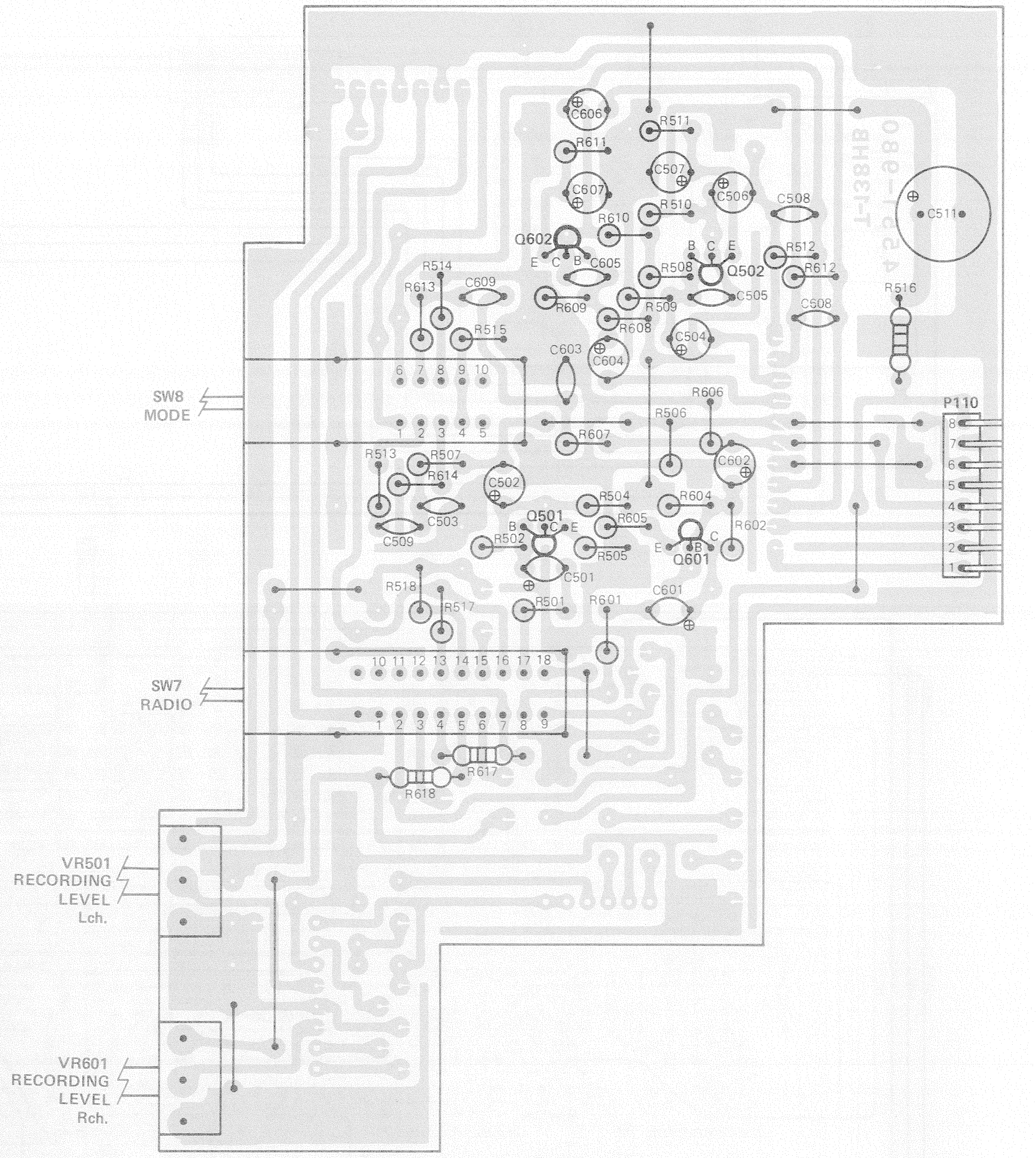
REC./PLAY AMP. P.C. BOARD


P107
6 5 4 3 2 1
YELLOW
P108
5 4 3 2 1
P109
13 12 11 10 9 8 7 6 5 4 3 2 1
R164
R154
Q133
E
C
B
R263
R262
D132
R162
R158
R163
JP
C144
D131
D232
C151
R161
D231
R148
C244
Q132
R165
R248
R256
R156
Q232
R249
IC131
C153
R149
R137
VR231
R237
C243
C143
C142
R143
R243
C240
C140
R139
C241
C242
R244
R144
R138
R238
D133
R241
C141
C133
C239
R141
C139
C136
R134
C236
R135
R166
R242
C138
R142
R136
R157
C150
R140
Q131
Q231
R236
R155
R251
C135
R234
C238
C137
C237
R151
R133
R233
C235
R240
C134
C234
GREEN
P106
1 2 3 4 5 6
SW14
REC. PLAY
R160
R150
R147
C131
TP2
C231
R250
R131
R231
C152
R146
C145
R246
R145
C132
C232
R245
R159
C245
TP1
TP3
R247
R132
R232
P104
P105
C246
C146
L171
D172
R171
C173
Q171
R252
R152
C174
C247
C147
D171
C171
L231
L131
C249
C149
C248
C148
VR171
VR271
C172
C272
OS1
A
B
C

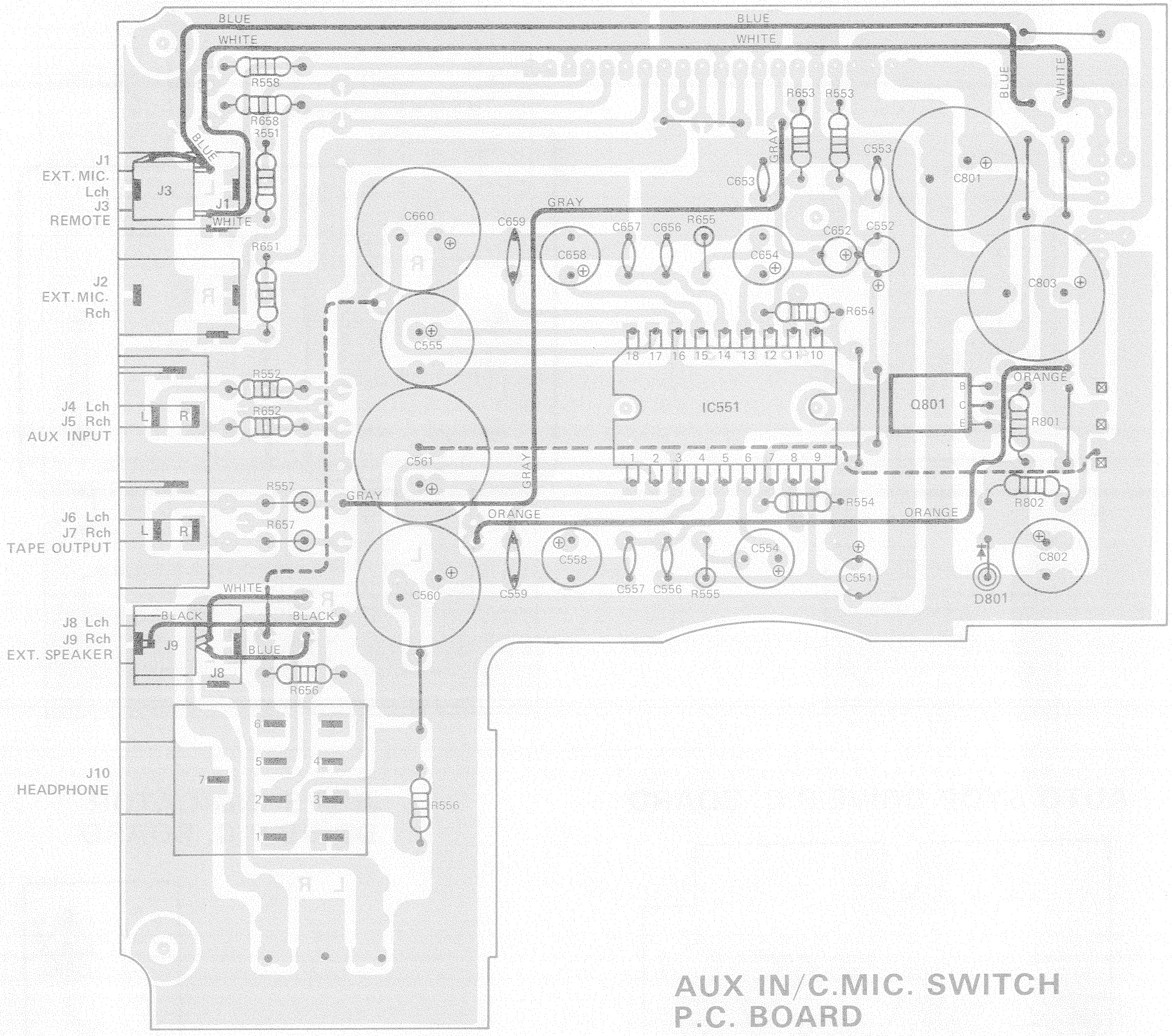
Note:

1. Round type chip carbon resistor and chip ceramic capacitor are used in this unit. The chips are fixed with special adhesives and soldered on both ends.
2. Round type chip resistor/capacitor(used for Rec./Play P.C. board)
   a. The color of the resistor is ivory, the color of the capacitors with withstand voltage of 16V and 25V is pink and the capacitor with withstand voltage of 50V is green. The value is displayed respectively in color code on the surface.
   b. The resistance is all 1/4 watts.
3. The orange-colored round type chip used for the Rec./Play P.C. board is a jumper element.
4. Detach the chip resistor/capacitor first and then attach ordinary resistor or capacitor for replacement. Insert from the front of the P.C. board and solder if each pattern has a hole, or directly solder the back of the pattern if it is a P.C. board that does not have a hole. Take extra precautions not to rip off the pattern when removing the chip.

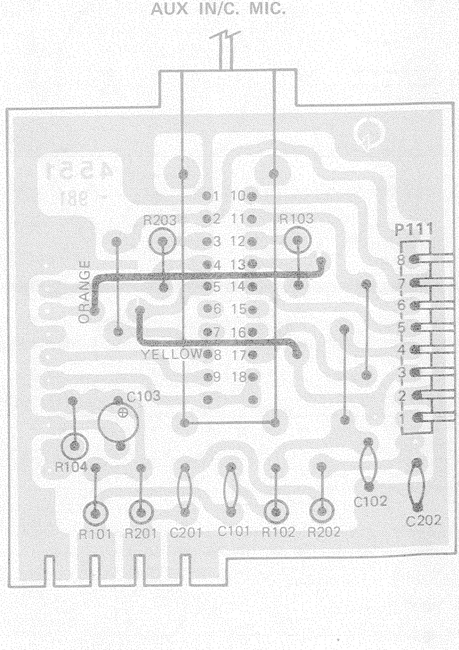
PRE/TONE CONTROL P.C. BOARD


C606
R511
R611
C507
C607
C506
C508
C511
R510
R610
Q602
R512
R514
C605
R508
Q502
R612
R613
C609
R609
R509
C505
R516
R608
C508
R515
C603
C504
C604
SW8
MODE
R606
P110
R506
R607
C602
R513
R507
R614
C502
R604
C503
Q501
R605
R504
R602
C509
R502
R505
Q601
C501
R518
R517
R501
R601
C601
SW7
RADIO
R617
R618
VR501
RECORDING
LEVEL
Lch.
VR601
RECORDING
LEVEL
Rch.

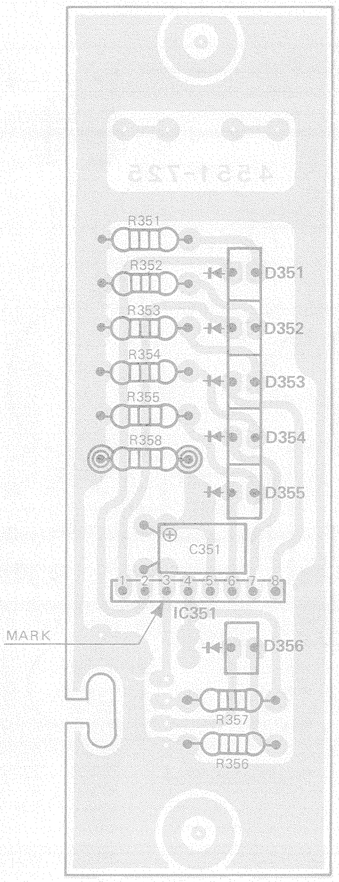
POWER AMP. P.C. BOARD


BLUE
WHITE
BLUE
WHITE
R558
R658
R551
R653
R553
J1
EXT. MIC.
Lch
J3
REMOTE
J3
J1
WHITE
C653
GRAY
C553
C801
C660
C659
GRAY
C657
C656
R655
C658
C654
C652
C552
R651
J2
EXT. MIC.
Rch
C803
R654
C555
18 17 16 15 14 13 12 11 10
IC551
Q801
B
C
E
ORANGE
R801
R552
J4 Lch
J5 Rch
AUX INPUT
L
R
R652
C561
1 2 3 4 5 6 7 8 9
R557
GRAY
R554
R802
ORANGE
ORANGE
J6 Lch
J7 Rch
TAPE OUTPUT
R657
C558
C557
C556
C554
C551
C802
C559
R555
D801
C560
WHITE
BLACK
BLACK
J8 Lch
J9 Rch
EXT. SPEAKER
J9
BLUE
J8
R656
J10
HEADPHONE
6
5
4
7
2
3
1
R556

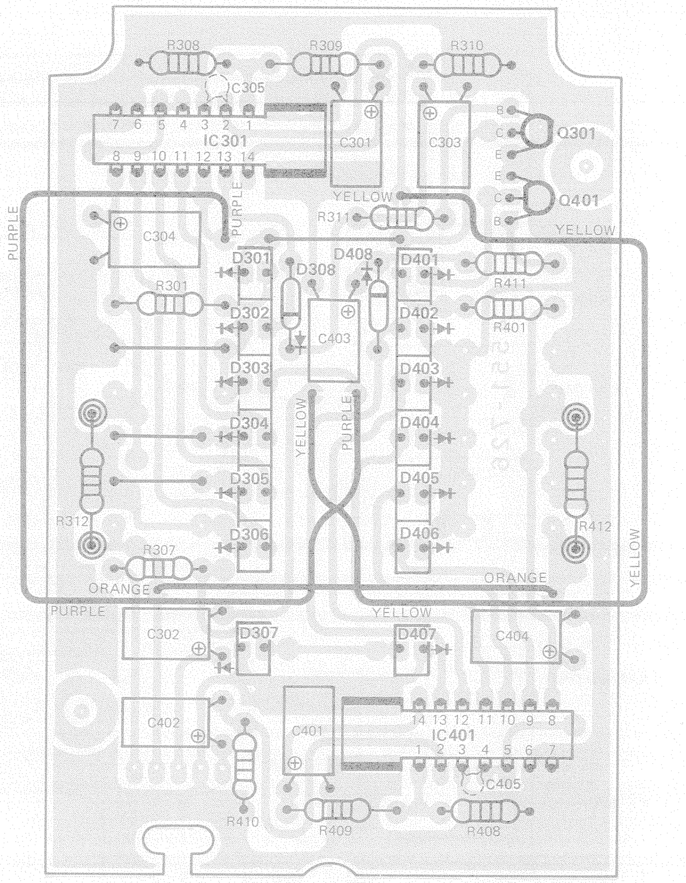
AUX IN/C.MIC. SWITCH P.C. BOARD


SW9
AUX IN/C. MIC.
1 10
2 11
3 12
4 13
5 14
6 15
7 16
8 17
9 18
R203
R103
P111
8
7
6
5
4
3
2
1
ORANGE
YELLOW
C103
R104
R101
R201
C201
C101
R102
R202
C102
C202

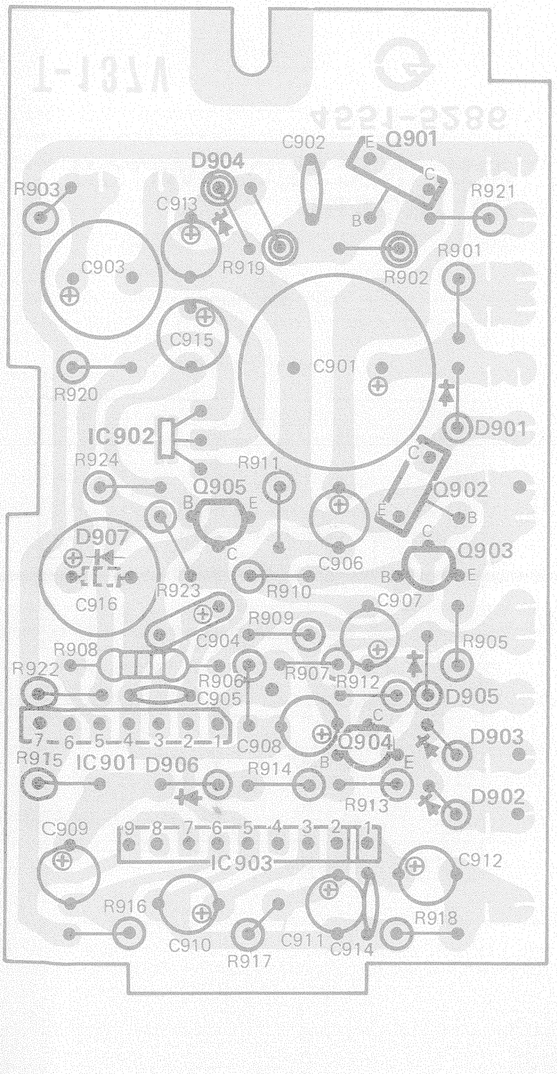
TUNING DISPLAY P.C. BOARD


4551-725
R351
R352
R353
R354
R355
R358
D351
D352
D353
D354
D355
C351
1 2 3 4 5 6 7 8
IC351
MARK
D356
R357
R356

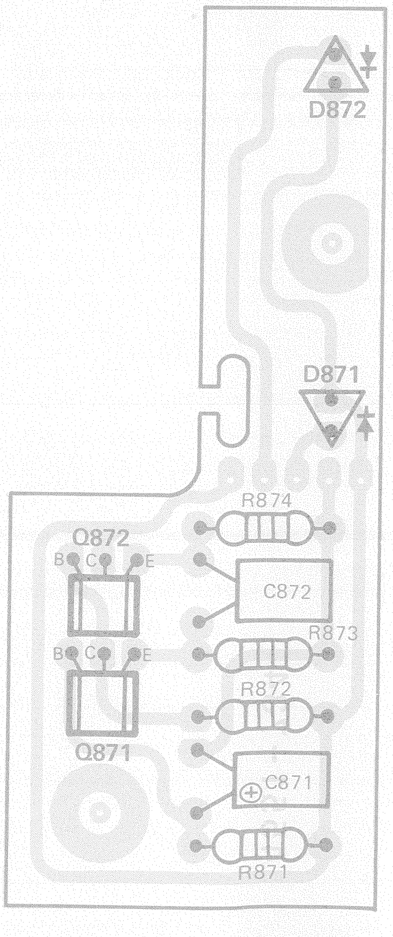
REC./VU LEVEL DISPLAY P.C. BOARD


R308
R309
R310
IC305
7 6 5 4 3 2 1
IC301
8 9 10 11 12 13 14
C301
C303
Q301
Q401
B C E
PURPLE
YELLOW
R311
C304
D301
D302
D303
D304
D305
D306
D308
D408
C403
D401
D402
D403
D404
D405
D406
R411
R401
R301
R312
R412
R307
ORANGE
C302
D307
D407
C404
C402
C401
14 13 12 11 10 9 8
IC401
1 2 3 4 5 6 7
C405
R410
R409
R408

AUTO STOP DRIVE P.C. BOARD


9826-1554
C902
Q901
D904
R903
C913
R921
R919
R901
C903
R902
C915
C901
R920
D901
IC902
R924
R911
Q905
Q902
D907
C906
Q903
C916
R923
R910
C907
R909
C904
R905
R908
R922
R906
R907
R912
C905
D905
7 6 5 4 3 2 1
C908
Q904
D903
R915
IC901
D906
R914
R913
D902
C909
9 8 7 6 5 4 3 2 1
IC903
C912
R916
R918
C910
C911
C914
R917
B C E

AQPS INDICATOR
DRIVE P.C. BOARD


D872
D871
R874
Q872
B C E
C872
R873
R872
Q871
C871
R871

TRANSISTOR/IC ELEMENTS VOLTAGE CHART

Volts

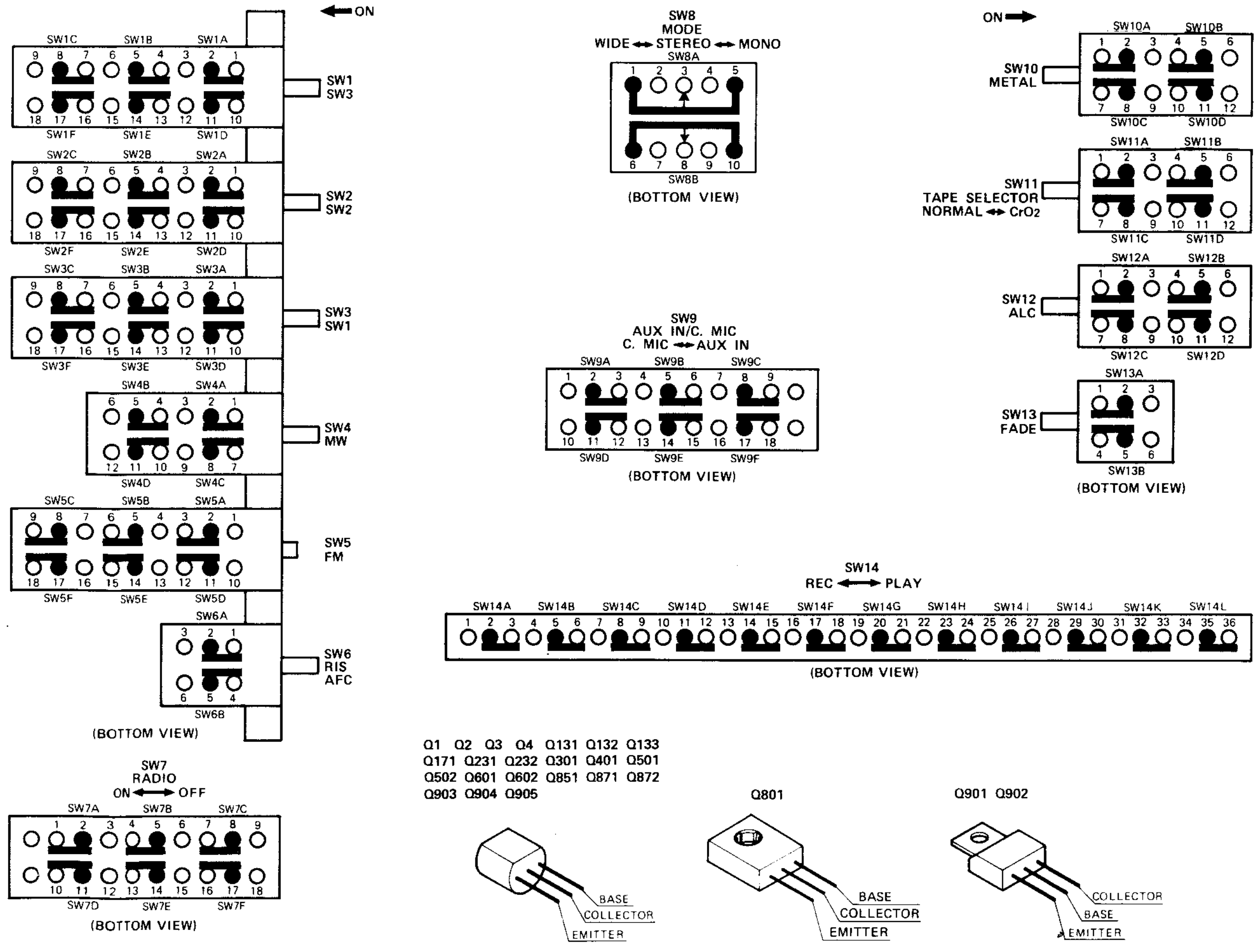
Q'NO	Q1	Q2	Q3	Q4	Q131 Q231	Q301 Q401	Q501 Q601	Q502 Q602	Q801	Q851	Q901	Q902		Q903	Q904
MODE	FM		AM		REC./PLAY	REC./PLAY	RADIO/CASS.				PLAY	PLAY	STOP	PLAY	
BASE	3.1	1.2	4.0	3.0	0.7	0.4	1.1	1.7	11.4	0.7	13.1	0.02	0	0.02	0.02
COLL.	5.4	5.6	7.9	6.9	1.4	8.9	8.0	4.1	13.5	0	13.2	13.2	13.2	0.02	0.02
EMIT.	2.4	0.5	3.4	2.4	0.1	0	0.5	1.1	10.7	0	12.4	0	0	0	0.02

Volts

TERMINAL NO.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
IC1	FM	3.4	3.4	3.4	5.6	0	4.2	4.2	6.0	0	0	6.9	0.9	0	3.4	1.3	0.8		
	AM	0.5	0.5	0	0	0	3.1	4.2	6.0	0	0	6.9	0.9	0	3.4	1.3	0.8		
IC2	FM	6.7	2.5	1.8	2.6	2.6	9.5	0	0.4	0	1.4	1.4	1.0	1.4	1.4	1.4	0.8		
IC131	REC./PLAY	8.5	0	0.6	0.1	0.7	4.2	3.8	0	9.0	3.7	4.1	0.7	0.1	0.6	0	0		
IC301,401	REC./PLAY	0	0	0	2.9	2.9	0	0	10.5	0.5	0.5	0.5	0.5	0.4	0				
IC351	FM/AM	9.9	9.9	0	0	11	9.9	9.9	9.9										
IC551	REC./PLAY	16.4	8.2	0	14.7	0.2	8.2	8.2	7.4	0	8.3	0.4	8.2	8.2	0.2	14.7	0	8.2	14.7
IC901	PLAY	4.1	10.4	1.4	0	0.02	12.4	12.4											
	STOP	4.1	0	0	0	0	0	0											
IC902		12.4	0	10.4															
IC903		1.7	0.02	2.0	0	0.02	0.02	12.4	0.02	12.4									

- All voltage readings from common ground are measured with V.T.V.M. under no signal conditions.

SWITCH CONNECTION VIEW


ON
SW1C SW1B SW1A
SW1F SW1E SW1D
SW1
SW3
SW2C SW2B SW2A
SW2F SW2E SW2D
SW2
SW2
SW3C SW3B SW3A
SW3F SW3E SW3D
SW3
SW1
SW4B SW4A
SW4D SW4C
SW4
MW
SW5C SW5B SW5A
SW5F SW5E SW5D
SW5
FM
SW6A
SW6B
SW6
RIS
AFC
(BOTTOM VIEW)
SW7
RADIO
ON ↔ OFF
SW7A SW7B SW7C
SW7D SW7E SW7F
(BOTTOM VIEW)
SW8
MODE
WIDE ↔ STEREO ↔ MONO
SW8A
SW8B
(BOTTOM VIEW)
SW9
AUX IN/C. MIC
C. MIC ↔ AUX IN
SW9A SW9B SW9C
SW9D SW9E SW9F
(BOTTOM VIEW)
ON
SW10A SW10B
SW10
METAL
SW10C SW10D
SW11A SW11B
SW11
TAPE SELECTOR
NORMAL ↔ CrO2
SW11C SW11D
SW12A SW12B
SW12
ALC
SW12C SW12D
SW13A
SW13
FADE
SW13B
(BOTTOM VIEW)
SW14
REC ↔ PLAY
SW14A SW14B SW14C SW14D SW14E SW14F SW14G SW14H SW14I SW14J SW14K SW14L
(BOTTOM VIEW)
Q1 Q2 Q3 Q4 Q131 Q132 Q133
Q171 Q231 Q232 Q301 Q401 Q501
Q502 Q601 Q602 Q851 Q871 Q872
Q903 Q904 Q905
BASE
COLLECTOR
EMITTER
Q801
BASE
COLLECTOR
EMITTER
Q901 Q902
COLLECTOR
BASE
EMITTER

ELECTRICAL PARTS LIST

[MODEL ST858]

SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
		RESISTORS				
⚠ 580	R358	10 ohm 1/4W, ±2%, Fuse	5102-1004713			
⚠ 586F	R901	10 ohm 1/2W, ±5%, Fuse	5102-1005710			
⚠ 587F	R903	2.7 ohm 1/4W, ±5%, Fuse	5102-2R7579			
564	VR1	Variable Resistor, 5 k ohm, MPX 19 kHz	5101-502083H			
565	VR2	Variable Resistor, 1 k ohm, MPX Separation	5101-102083H			
124	VR171, 271	Variable Resistor, 50 k ohm, Record Bias Level	5101-503083H			
123	VR231	Variable Resistor, 30 k ohm, Playback Level	5101-303083H			
632	VR501, 601	Variable Resistor, 25 k ohm, Recording Level Controls	5113-2530848			
688	VR531/631, 532/632	Variable Resistor, 50 k ohm, Bass and Treble Controls	5113-50301103			
687	VR533	Variable Resistor, 100 k ohm, Balance Control	5113-1040553			
689	VR534/634	Variable Resistor, 100 k ohm, Volume Control	5113-1040749			
818	VR851	Variable Resistor, 3 k ohm, Power Indicator Level	5101-302083H			
		CAPACITORS				
520	VC1, 2, 3, 4	Variable Capacitor (w/Trimmers TC1/2/3/4)	5324-0140			
523	TC5, 6, 7, 8, 9, 10, 11	Trimmer Capacitor	5371-27			
		SEMICONDUCTORS				
501	IC1	Integrated Circuit, FM/AM IF Amp., FM Det.	5652-HA11251			
502	IC2	Integrated Circuit, PLL MPX	5652-LA3361			
101	IC131	Integrated Circuit, Rec./Play/ALC Amp.	5652-M51301P			
591	IC301, 401	Integrated Circuit, Rec./VU Level Display Driver	5652-LB1416D			
570	IC351	Integrated Circuit, Tuning Display Driver	5652-M51903L			
741	IC551	Integrated Circuit, Power Amp.	5652-AN7145H			
561F	IC901	Integrated Circuit, Auto Stop Driver	5654-AN6250			
564F	IC902	Integrated Circuit, Auto Stop Sensor	5193-DM101A			
562F	IC903	Integrated Circuit, Signal Comparator	5654-BA335			
504	Q1	Transistor (2SC535(C)), FM RF Amp.	5613-535(C)			
505	Q2	Transistor (2SC535(B)), FM Converter	5613-535(B)			
506	Q3	Transistor (2SC460(B)), AM Osc.	5613-460(B)			
507	Q4	Transistor (2SC460(C)), AM Mixer	5613-460(C)			
621	Q131, 231, 501, 601	Transistor (2SC945L(K)), Rec./Play Amp., Pre-Amp.	5613-945L(K)			
622	Q132, 133, 171, 232, 502, 602, 871	Transistor (2SC2320(G)), Muting, Tone Control Amp., AQPS Indicator Driver	5613-2320(G)			
593	Q301, 401, 851, 872	Transistor (2SC2603(F)), Peak Indicator Driver, Power Indicator Driver, AQPS Indicator Driver	5613-2603(F)			
743	Q801	Transistor (2SC1368(C)), Voltage Regulator	5613-1368(C)			
572F	Q901, 902	Transistor (2SC1728-(4)), Voltage Regulator, Solenoid Driver	5613-1728-(4)			

SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
571F	Q903, 905	Transistor (2SC2320(E)or(D)), Muting	5631-2320(E)or(D)			
570F	Q904	Transistor (2SA999(E)), Solenoid Pre Driver	5611-999(E)			
509	D1	Diode, FM AFC	5633-1S2790W			
512	D2, 7, 131, 132, 133, 171, 172, 231, 232, 902, 903, 905, 906	Diode, Overload, ALC Det., Rectifier, Switching, Rectifier, Switching	5631-1S2473			
511	D3, 4, 8	Diode, AM Det., Tuning Display Current Rectifier	5631-1K60			
514	D5	Zener Diode	5635-EQA0108S			
572	D301, 307, 401, 407, 351, 352, 353, 354, 355, 356	Light Emitting Diode, Peak Indicator, Rec. Indicator, Tuning Display, FM Stereo Indicator (Red)	5637-GL9PR9			
597	D302, 303, 304, 305, 306, 402, 403, 404, 405, 406	Light Emitting Diode, Rec./VU Level Display (Green)	5637-GL9PG59			
600	D308, 408	Diode, Rectifier	5631-1K34A			
745	D801	Zener Diode	5635-EQA0111S			
⚠ 803	D823, 824, 825, 826	Diode, Rectifier	5632-1SR35-1F			
807	D851	Varistor, Bias Compensation	5641-HV23G			
809	D852	Light Emitting Diode, Power Indicator (Red)	5637-GL3AR1			
835	D871, 872	Light Emitting Diode, AQPS Indicator (Red)	5637-GL9PR3			
566F	D901	Diode, Spark Killer	5632-1SR35-10			
567F	D904	Zener Diode	5635-EQA0115R			
569F	D907	Zener Diode	5635-RD7R5EB			

COIL AND TRANSFORMERS

SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
536	L1	Coil, FM RF	5991-0035			
538	L2	Coil, IF Trap	5995-0056			
541	L3	Coil, FM Osc.	5942-40313			
544	L4	Coil, SW3 Antenna	5943-0378			
543	L5	Coil, SW2 Antenna	5943-0368			
531	L6/7	Ferrite Bar Antenna, SW1/MW	5912-119			
550	L8	Coil, SW3 Osc.	5923-01814			
549	L9	Coil, SW2 Osc.	5923-02814			
547	L10	Coil, SW1 Osc.	5922-0416			
546	L11	Coil, MW Osc.	5922-0406			
539	L12	Coil, FM Phase Det.	5995-031221			
121	L131, 231	Coil, Record Bias Trap	5932-4023			
115	L171	Coil	5995-101325			
609	L901	DC Solenoid	4333-40112			
555	T1	Transformer, FM IF	5563-4018			
556	T2	Transformer, FM Det.	5563-7088			
553	T3, 5	Transformer, AM IF	5553-70311			
552	T4	Transformer, AM IF	5553-70111			
⚠ 502	T801	Transformer, Power	5584-001254			

MISCELLANEOUS

SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
558	F1	LC Component, Band Pass Filter	5214-4			
561	F2, 3	CR Component, Low Pass Filter	5211-9			
526	CF1	Ceramic Filter, FM IF	5671-4115Z			
517	SW1/2/3/4/5/6	Push Switch, Band Selector, SW3, SW2, SW1, MW, FM, RIS/AFC	4431-06300151			
628	SW7	Lever Switch, Radio	4462-062015			
629	SW8	Lever Switch, Mode	4462-023014			
627	SW9	Lever Switch, Aux IN/C. Mic.	4462-062024			
713	SW10, 11, 12	Push Switch, Metal, Tape Selector, ALC	4431-01040269			
712	SW13	Push Switch, Fade	4431-01020285			
113	SW14	Slide Switch, Rec./Play	4421-122416			
816	SW15, 18, 19, 20, 21	Spring Switch, Power, AQPS (F.F., Rew.), Amp. Power, Pause	4463-51			
220	SW17	Spring Switch, Motor Power	4463-40			
⚠ 504	SO1	Ext. AC Socket (w/SW16)	4474-91			
750	SO2	DIN Socket (w/SW22)	4474-49			
510	M1, 2	Electret Condenser Microphone	5896-E015			
513	SP1, 2	Dynamic Speaker, 4 ohm, 160 mm (Woofer)	5811-C1600118			
512	SP3, 4	Dynamic Speaker, 8 ohm, 50 mm (Tweeter)	5811-C050018			
515	PL1, 2	Lamp, Dial Illuminator (18V, 50 mA)	5731-1800143			
749	J1, 2, 3, 4, 5, 6, 7, 8, 9, 10	10-Pin Jack, Mic./Remote/Aux. input/ Tape output/Ext. Speaker/Headphone	4215-32			
506	J11	Jack, Ext. Power (DC12–14V)	4451-0031			
521	J101	Connector with Lead Wire (3-Pin, Female)	4163-2327			
522	J102	Connector with Lead Wire (8-Pin, Female)	4163-1628			
523	J103	Connector with Lead Wire (4-Pin, Female)	4163-0328			
524	J104	Connector with Lead Wire (13-Pin, Female)	4163-1728			
129	J105	Connector with Lead Wire (8-Pin, Female)	4163-0828			
617F	J106	Connector with Lead Wire (6-Pin, Female)	4163-01165			
536	J107	Connector (6-Pin, Female)	4443-067125			
526	J108	Connector with Lead Wire (5-Pin, Female)	4163-00865			
525	J109	Connector with Lead Wire (13-Pin, Female)	4163-00765			
527	J110	Connector with Lead Wire (8-Pin, Female)	4163-00965			
528	J111	Connector with Lead Wire (8-Pin, Female)	4163-01065			
531	J112	Connector with Lead Wire (7-Pin, Female)	4163-0728			
568	P101	Connector (3-Pin, Male)	4443-034116			
569	P102	Connector (8-Pin, Male)	4443-08428			
570	P103	Connector (4-Pin, Male)	4443-04428			
127	P104	Connector (13-Pin, Male)	4443-130161			
126	P105	Connector (8-Pin, Male)	4443-080161			
129	P106	Connector (6-Pin, Male)	4443-064116			

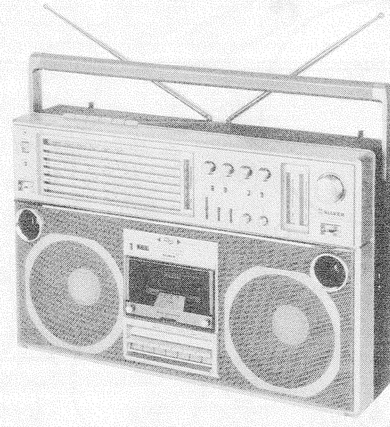
SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
131	P107	Connector (6-Pin, Male)	4443-06418			
128	P108	Connector (5-Pin, Male)	4443-054116			
130	P109	Connector (13-Pin, Male)	4443-134116			
635	P110,111	Connector (8-Pin, Male)	4443-084116			
826	P112	Connector (7-Pin, Male)	4443-07428			
538	JM1	Jamper Lead (6-Wire)	4242-060012			
539	JM2	Jamper Lead (10-Wire)	4242-100012			
814	FH1, 2	Fuse Holder	4472-414			
⚠ 811	FU1	Fuse, 2A	5732-202030			
245F	RPH1	Rec./Play Head	5874-1321			
246F	EH1	Erase Head	5873-1218			
105	MO1	DC Motor Assembly (w/Pulley)	D311-MRT14LVB			
222	A1, 2	Telescopic Antenna	1392-0700119			
⚠ 110		AC Line Cord (w/Plug)	4161-0162			
573	FB1−6	Ferrite Bead	5597-4			
508	TE1	Terminal, FM Ext. Ant.	4214-60			
111	OS1	Complex, Record Bias Osc	6171-0502			

⚠ SAFETY-REQUIREMENTS COMPONENTS IN ACCORDANCE WITH PRESENT SAFETY REGULATIONS, THESE COMPONENTS MUST ONLY BE REPLACED BY ORIGINAL PARTS.

SERVICE MANUAL
SILVER

MODEL ST858
MODEL ST858L
SUPPLEMENT 1

THIS SERVICE MANUAL IS TO BE APPLIED TO MODEL ST858 (SERIAL NO. 25001 – 37500) AND ST858L (SERIAL NO. 5001 — 7000) FOR SUPPLEMENT. AS TO ALL OTHER PARTS AND SERVICE INFORMATIONS EXCEPT THEM IN THIS SERVICE MANUAL, PLEASE REFER TO THE SERVICE MANUALS FOR MODEL ST858 (PART NO.1112-G000188) AND ST858L (PART NO. 1112-G000212).

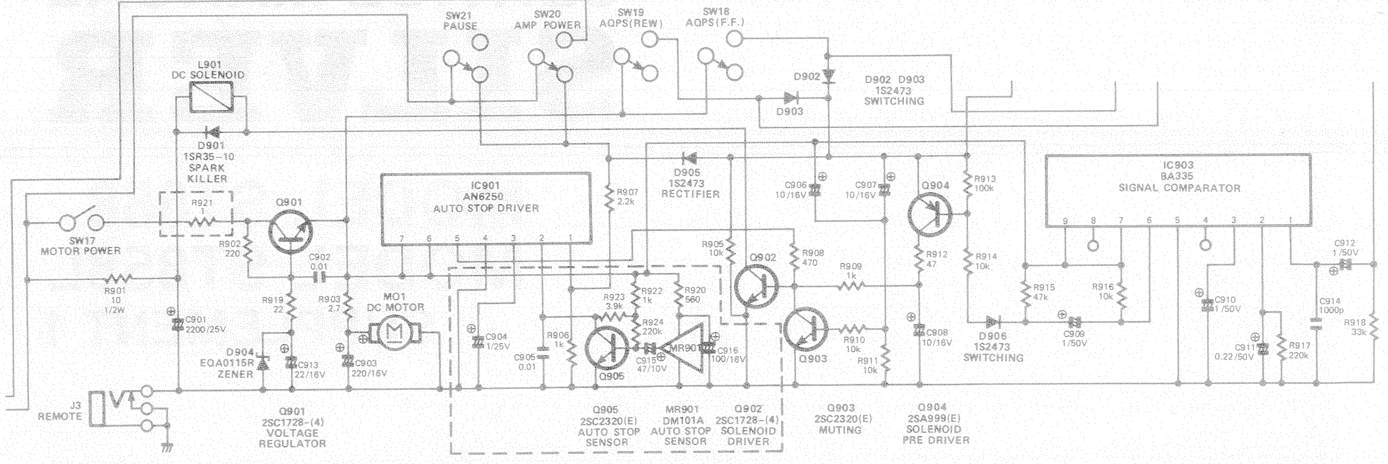


ELECTRICAL PARTS LIST

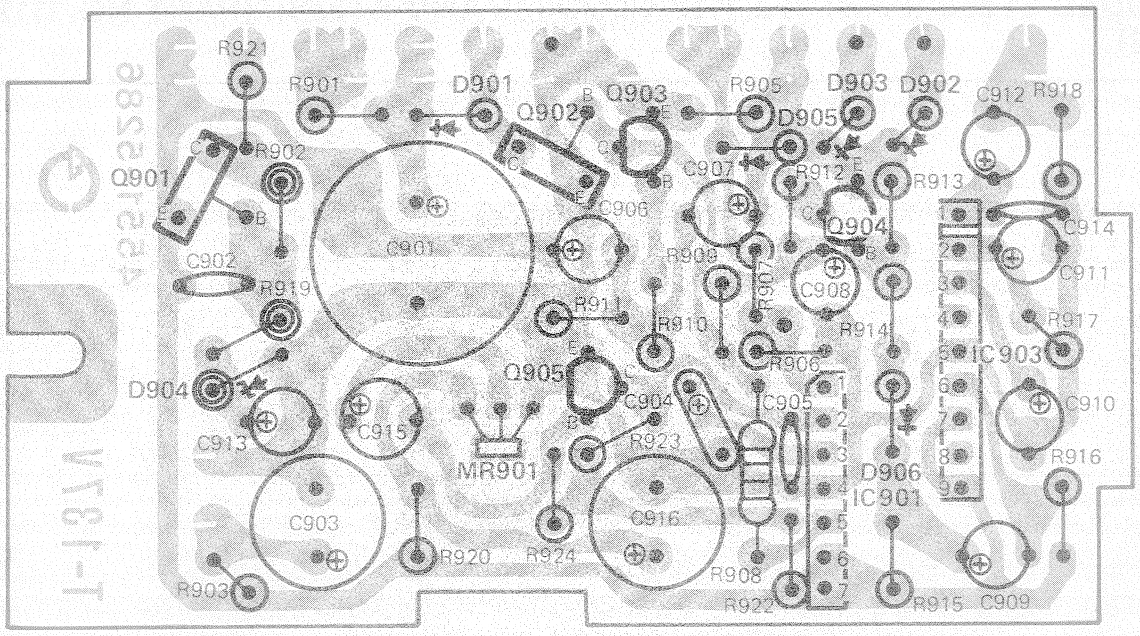
REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
	CAPACITORS				
C904	1MF ± 20% 25V Al. Solid	5346-105195			
C915	100MF +50% – 10% 16V Electrolytic	5345-107-16			
C916	47MF +50% – 10% 10V Electrolytic	5345-476-10			
	SEMICONDUCTORS				
Q901, 902	Transistor (2SC1728-(4)), Voltage Regulator, Solenoid Driver	5613-1728-(4)			
Q903, 905	Transistor (2SC2320(E)), Muting, Auto Stop Sensor	5613-2320(E)			
Q904	Transistor (2SA999(E)), Solenoid Pre Driver	5611-999(E)			
MR901	Magneto Resistor, Auto Stop Sensor	5193-DM101A			

NOTE: When spare parts are needed, type the quantity desired in the "ORDER Q'TY" column of the order form in this Service Manual and send copy.

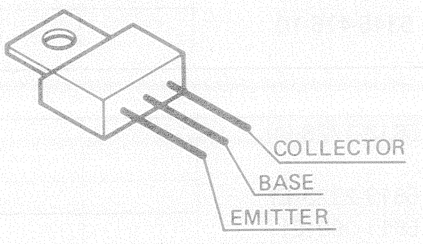
SCHEMATIC DIAGRAM


SW21
PAUSE
SW20
AMP POWER
SW19
AQPS(REW)
SW18
AQPS(F.F.)
L901
DC SOLENOID
D901
1SR35-10
SPARK
KILLER
D902
D903
D902 D903
1S2473
SWITCHING
IC901
AN6250
AUTO STOP DRIVER
R907
2.2k
D905
1S2473
RECTIFIER
C906
10/16V
C907
10/16V
Q904
R913
100k
IC903
BA335
SIGNAL COMPARATOR
Q901
R921
1
SW17
MOTOR POWER
R902
220
C902
0.01
R901
10
1/2W
C901
2200/25V
R919
22
R903
2.7
MO1
DC MOTOR
D904
EQA0115R
ZENER
C913
22/16V
C903
220/16V
C904
1/25V
C905
0.01
R906
1k
R923
3.9k
R922
1k
R924
220k
R920
560
C915
47/10V
MR901
C916
100/16V
R905
10k
Q902
R908
470
R909
1k
R910
10k
R911
10k
Q903
R912
47
C908
10/16V
R914
10k
D906
1S2473
SWITCHING
R915
47k
R916
10k
C909
1/50V
C910
1/50V
C911
0.22/50V
R917
220k
C914
1000p
C912
1/50V
R918
33k
J3
REMOTE
Q901
2SC1728-(4)
VOLTAGE
REGULATOR
Q905
Q905
2SC2320(E)
AUTO STOP
SENSOR
MR901
DM101A
AUTO STOP
SENSOR
Q902
2SC1728-(4)
SOLENOID
DRIVER
Q903
2SC2320(E)
MUTING
Q904
2SA999(E)
SOLENOID
PRE DRIVER

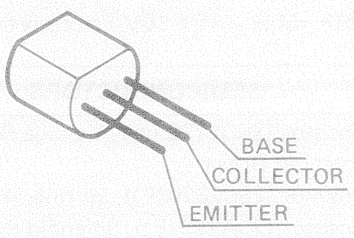
AUTO STOP DRIVE P.C. BOARD


R921
R901
D901
Q902
Q903
R905
D903
D902
C912
R918
Q901
R902
C907
D905
R912
R913
C906
Q904
C914
C902
C901
R909
R907
C908
C911
R919
R911
R910
R914
R917
D904
Q905
R906
IC903
C904
C905
C910
C913
C915
MR901
R923
D906
IC901
R916
C903
C916
R920
R924
R908
R903
R922
R915
C909
B
C
E

Q901 Q902


COLLECTOR
BASE
EMITTER

Q903 Q904 Q905


BASE
COLLECTOR
EMITTER

SHIN-SHIRASUNA ELECTRIC CORP., JAPAN

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